ADB

Completion Report

Project Number: 39669-013
Loan Number: 2403
September 2015

Uzbekistan: CAREC Regional Road Project

Asian Development Bank

CURRENCY EQUIVALENTS

Currency Unit – sum (SUM)

		At Appraisal (27 November 2007)	At Project Completion (31 January 2013)
SUM1.00	=	$0.000778	$0.000501
$1.00	=	SUM1,285.23	SUM1,997.06

ABBREVIATIONS

ADB	–	Asian Development Bank
BCR	–	benefit to cost ratio
CAREC	–	Central Asia Regional Economic Cooperation
CRBC	–	China Road and Bridge Construction
EIRR	–	economic internal rate of return
EMP	–	environmental management plan
GDP	–	gross domestic product
HDM-4	–	Highway Development and Management Model 4
IEE	–	initial environmental examination
IRI	–	international roughness index
km	–	kilometer
O&M	–	operation and maintenance
PIU	–	project implementation unit
PMCS	–	project management and construction supervision
PPMS	–	project performance monitoring system
PPP	–	public–private partnership
RAMS	–	road asset management system
REPC	–	road equipment pool company
RF	–	Road Fund
RSS	–	road sector sustainability
TYQ	–	Transyo'Iqurilish
VOC	–	vehicle operating cost
vpd	–	vehicles per day

NOTES

(i) The fiscal year (FY) of the Government and its agencies ends on 31 December. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2013 ends on 31 December 2013.

(ii) In this report, "$" refers to US dollars.

Vice-President	W. Zhang, Operations 1
Director General	S. O'Sullivan, Central and West Asia Department (CWRD)
Director	X. Yang, Transport and Communications Division, CWRD
Team leader	K. Luu, Transport Specialist, CWRD
Team members	A. Alam, Young Professional, Sustainable Development and Climate Change Department A. Arenas-Poblete, Senior Operations Assistant, CWRD N. Bustamante, Senior Operations Assistant, CWRD A. Diamante, Associate Project Analyst, CWRD R. Idei, Transport Specialist, CWRD F. Insavalieva, Associate Project Analyst, CWRD G. Jurado, Senior Operations Assistant, CWRD S. Musaev, Senior Portfolio Management Officer, CWRD D. Pyo, Lead Transport Specialist, CWRD N. Singru, Principal Portfolio Management Specialist, CWRD W. Tawisook, Senior Transport Specialist, CWRD F. Trace, Transport Economist, CWRD

CONTENTS

BASIC DATA

A. Loan Identification

1.	Country	Uzbekistan
2.	Loan Number	2403-UZB
3.	Project Title	CAREC Regional Road Project
4.	Borrower	Republic of Uzbekistan
5.	Executing Agency	Road Fund
6.	Amount of Loan	$75,300,000
7.	Project Completion Report Number	1554

B. Loan Data

1.	Appraisal	
	– Date Started	18 October 2007
	– Date Completed	29 October 2007
2.	Loan Negotiations	
	– Date Started	23 November 2007
	– Date Completed	23 November 2007
3.	Date of Board Approval	19 December 2007
4.	Date of Loan Agreement	14 April 2008
5.	Date of Loan Effectiveness	
	– In Loan Agreement	60 days after the date of the loan agreement
	– Actual	2 May 2008
	– Number of Extensions	0
6.	Closing Date	
	– In Loan Agreement	30 June 2012
	– Actual	30 June 2012
	– Number of Extensions	0
7.	Terms of Loan	
	– Amount of Loan	$75.30 million
	– Interest Rate	Sum of the London interbank offered rate (LIBOR) and 0.60% as provided by Section 3.02 of the Loan Regulations[a], less a credit of 0.40% as provided by Section 3.03 of the Loan Regulations.
	– Commitment Charge	0.15% per annum
	– Maturity (number of years)	24
	– Grace Period (number of years)	4
8.	(i) Terms of Relending	
	– Amount of Sub-Loan	$19.99 million
	– Interest Rate	Sum of LIBOR and 0.60% as provided by Section 3.02 of the Loan Regulations, less a credit of 0.40% as provided by Section 3.03 of the Loan Regulations.

[a] ADB. 2001. *Ordinary Operations Loan Regulations; Applicable to LIBOR-based Loans made from ADB's Ordinary Capital Resources* (1 July 2001).

– Commitment Charge	0.15% per annum
– Maturity (number of years)	24
– Grace Period (number of years)	4
– Second-Step Borrower	Road Fund under the Ministry of Finance
(ii) Terms of Relending	$55.31 million
– Amount of Sub-Loan	Sum of LIBOR and 0.60% as provided by Section 3.02 of the Loan Regulations, less a credit of 0.40% as provided by Section 3.03 of the Loan Regulations
– Interest Rate	
– Additional Interest Charge	0.20% per annum
– Commitment Charge	0.15% per annum
– Maturity (number of years)	24
– Grace Period (number of years)	4
– Second-Step Borrower	"Transyo'Iqurilish" (road equipment pool company, as indicated in the loan agreement)

9. Disbursements

a. Dates

Initial Disbursement	Final Disbursement	Time Interval
4 June 2008	30 January 2013	56 months
Effective Date	**Original Closing Date**	**Time Interval**
2 May 2008	30 June 2012	50 months

b. Amount ($ million)[a]

Cat. No.	Category	Original Allocation	Last Revised Allocation[a]	Amount Canceled[a]	Net Amount Available	Amount Disbursed	Undisbursed Balance[b]
01	Civil Works	9.200	9.200		9.200	4.074	5.126
	01A Package B1		2.100			1.835	0.265
	01B Package B2		2.187			0.722	1.465
	01C Package B3		2.422			0.782	1.640
	01D Package B4		2.491			0.735	1.756
02	Equipment	55.100	53.134	1.966	53.134	52.346	0.788
03A	Procurement Specialist	0.240	0.240		0.240	0.224	0.016
03B	Project Management and Supervision	1.970	1.970		1.970	1.532	0.438
03C	Road Sector Planning and Management	1.350	1.350		1.350	1.060	0.290
03D	Development of REPC	0.210	0.210		0.210	0.186	0.024
04	Recurrent Costs	0.550	0.550		0.550	0.455	0.095
05	Unallocated	6.680	5.646	1.034	5.646	0.000	5.646
Total		**75.300**	**72.300**	**3.000**	**72.300**	**59.877**	**12.423**

REPC = road equipment and pool company.
[a] $3.0 million was canceled on 30 November 2010.
[b] Canceled at financial closing of loan on 31 January 2013.

10. Local Cost Financing: Not Applicable

C. Project Data

1. Project Cost ($ million)

Cost	Appraisal Estimate	Actual
ADB – Loan 2403	75.30	59.88
Borrower-Financed:		
- Civil Works	52.40	139.40
- Project Management and Supervision	0.00	1.21
- Development of REPC	0.00	0.90
- Taxes and Duties	22.20	21.69
- Recurrent Costs	0.00	0.10
- Contingencies	18.40	0.00
- Financing Charges[a]	5.10	1.72
Total Borrower-Financed	98.10	165.02
Total	**173.40**	**224.90**

ADB = Asian Development Bank; REPC = road equipment and pool company.
[a] The amount is as of 15 June 2014. The amount includes the additional margin incurred by the on-lending to the REPC.

2. Financing Plan ($ million)

Cost	Appraisal Estimate	Actual
Implementation Costs		
Borrower Financed	93.00	163.30
ADB Financed	75.30	59.88
Other External Financing	0.00	0.00
Sub-Total	**168.30**	**223.18**
IDC Costs		
Borrower Financed	5.10	1.72[a]
ADB Financed	0.00	0.00
Other External Financing	0.00	0.00
Sub-Total	**5.10**	**0.00**
Total	**173.40**	**224.90**

ADB = Asian Development Bank, IDC = interest during construction.
[a] The amount is as of 15 June 2014. The amount includes the additional margin incurred by the on-lending to the REPC.

3. Cost Breakdown by Project Component ($ million)

Component	Appraisal Estimate	Actual
A. Base Cost		
1. Road Development Component		
a. Civil Works	61.60	143.47
b. Consulting Services		
(i) Procurement Specialist	0.24	0.22
(ii) Project Management and Supervision[a]	1.97	2.74
2. Road Sector Sustainability Component		
a. Procurement of Road Equipment	55.10	52.35
b. Consulting Services		
(i) Road Sector Planning and Management System	1.35	1.06
(ii) Development of REPC	0.21	1.09
3. Taxes and Duties	22.20	21.69
Subtotal (1+2+3)	**142.67**	**222.62**
B. Recurrent Costs	**0.55**	**0.56**
C. Contingencies	**25.08**	**0.00**
Total Base Costs	**168.30**	**223.18**
D. Financing Charges During Implementation[b]	**5.10**	**1.72**
Total Project Costs (A+B+C+D)	**173.40**	**224.90**

REPC = road equipment and pool company.

[a] The amount includes the cost for the project management and construction supervision consultancy services beyond the loan closing of 30 June 2012.

[b] The amount is as of 15 June 2014.

4. Project Schedule

Item	Appraisal Estimate	Actual
Contract with Consultants		
Date of Award		
INV: Procurement Specialist	January 2008	15 April 2008
Procurement Specialist (2nd)[a]		28 October 2008
CSP-1: Project Management and Construction Supervision	October 2008	13 May 2009
CSP-2: Development of REPC	April 2008	24 October 2008
CSP-3: Road Sector Planning and Management	April 2009	13 May 2009
Project auditing[b]	October 2009	3 September 2009
Project auditing (2nd)[b]		28 June 2012
Civil Works Contract		
CWP-1: Km 876-916 (Section B1)		
Date of Award	October 2008	22 September 2009
Completion of Work	September 2010	July 2011
CWP-2: km 490–520 (Section B2)		
Date of Award	January 2009	13 May 2010
Completion of Work	June 2010	April 2014
CWP-3: km 520–553 (Section B3)		
Date of Award	January 2009	13 May 2010
Completion of Work	June 2010	April 2014
CWP-4: km 553–581 (Section B4)		
Date of Award	April 2010	13 May 2010
Completion of Work	December 2011	April 2014
Contract of Supplying Equipment		
Date of Award		
GP-1	June 2008	
C1-Lots 3, 4 and 6		16 January 2009
C1-Lot 5		2 February 2009
C1-Lot 2		18 March 2009
C1-Lot 1		2 April 2009
GP-2	September 2008	
C1-Lot 1		Canceled
C2-Lots 2-3		02 March 2009
Completion of Tests and Commissioning	April 2009	3 September 2010

CSP = consultancy service package; CWP = civil works package; GP = goods package; INV = individual consultant; km = kilometer; REPC = road equipment and pool company.

[a] Due to earlier termination of the original procurement specialist, another specialist was engaged.

[b] The first contract covered the fiscal year (FY) 2008-2010, and the second contract covered FY 2011-2012.

5. Project Performance Report Ratings

	Ratings	
Implementation Period	**Development Objectives**	**Implementation Progress**
From December 2007 to 31 December 2010	Satisfactory	Satisfactory
From 1 January 2011 to 31 December 2012	On track[a]	

[a] From 1 January 2011 the project performance rating system was replaced with eOperations.

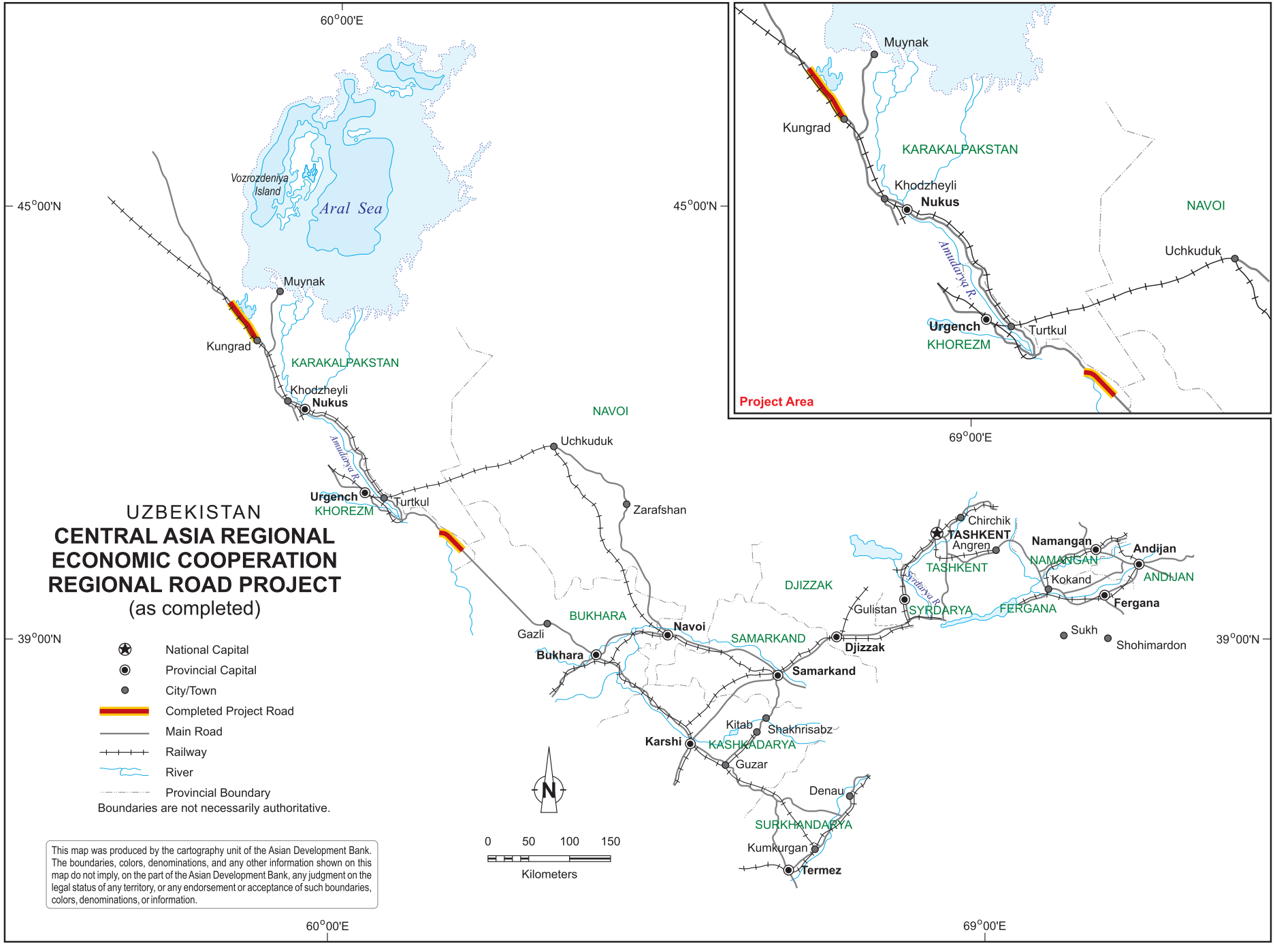
D. Data on Asian Development Bank Missions

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members[b]
Loan Reconnaissance	24 July–6 August 2007	3	20	a, b, c
Loan Appraisal	18–29 October 2007	3	24	a, b, c
Consultation	29 January–5 February 2008	2	16	a, c
Inception	30 April–6 May 2008	3	21	a, c, d
Review (1)[a]	11–19 February 2009	3	21	a, c, e
Review (2)[a]	20–26 May 2009	2	12	c, e
Review (3)[a]	26 November–2 December 2009	3	21	a, b, c
Review (4)[a]	12–16 May 2010	2	10	c, f
Midterm Review Mission[a]	25 October–4 November 2010	3	33	c, d, e
Review (5)[a]	8–12 August 2011	1	4	e
Review (6)[a]	1–14 February 2012	4	13	c, d, e, f
Review (7)[a]	7–15 May 2012	5	14	c, e, g, j, k
Special Loan Administration[a]	17–25 August 2012	3	15	c, e, l
Project Completion Review[a, c] (1)	22 Apr–6 May 2014	6	105	a, c, e, g, h, i
Project Completion Review (2)	11–20 June 2014	3	20	c, e

[a] Missions were combined for other projects.

[b] a = transport economist, b = financial specialist, c = portfolio management officer, d = operations officer, e = transport specialist, f = project administration unit head, g = safeguards specialist, h = young professional, i = operations assistant, j = social development specialist, k = social development officer, l = procurement specialist.

[c] PCR mission was delayed owing to delayed physical completion of the roadway.


UZBEKISTAN
CENTRAL ASIA REGIONAL ECONOMIC COOPERATION REGIONAL ROAD PROJECT
(as completed)
National Capital
Provincial Capital
City/Town
Completed Project Road
Main Road
Railway
River
Provincial Boundary
Boundaries are not necessarily authoritative.
This map was produced by the cartography unit of the Asian Development Bank. The boundaries, colors, denominations, and any other information shown on this map do not imply, on the part of the Asian Development Bank, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries, colors, denominations, or information.
60°00'E
69°00'E
45°00'N
39°00'N
Aral Sea
Vozrozdeniya Island
Muynak
Kungrad
KARAKALPAKSTAN
Khodzheyli
Nukus
Amudarya R.
Urgench
KHOREZM
Turtkul
NAVOI
Uchkuduk
Zarafshan
Gazli
BUKHARA
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Karshi
KASHKADARYA
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Guzar
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Kilometers

15-1363 AV

I. PROJECT DESCRIPTION

1. The Central Asia Regional Economic Cooperation (CAREC) Regional Road Project (the project) was developed as part of the Government of Uzbekistan's road development program for 2007–2010,[1] which prioritized the construction and rehabilitation of international transport routes. The transport sector development objectives and strategic directions of the program emphasize the importance of international traffic, which was forecasted to grow by 44%–55% over 10 years. The program focused on the development of strategic international highways, which were also included as a part of the CAREC corridors. To ensure the sustainability of development, the project included assistance for improving the capacity of the country's road sector institutions in the areas of sector planning, financing, budgeting systems, and providing equipment for road construction and maintenance.

2. The objective of the project was to support an adequate, efficient, safe, and sustainable road network in Uzbekistan that provides domestic and regional connectivity that will contribute to sustainable economic development and increased domestic and international trade. At appraisal, the project had two components: (i) a road development component, and (ii) road sector sustainability component (RSS component). The Asian Development Bank (ADB) financed part of the project cost through a loan of $75.3 million from ordinary capital resources.[2] The project's appraisal design and monitoring framework, updated with achievements at completion, is in Appendix 1.

3. The Republic of Uzbekistan was the borrower, and the Road Fund (RF) under the Ministry of Finance was the executing agency. The RF is responsible for planning and budgeting with respect to common-use roads, comprising international, national and local roads.

II. EVALUATION OF DESIGN AND IMPLEMENTATION

A. Relevance of Design and Formulation

4. At appraisal, the project was highly relevant to the needs of the country's transport sector, and it remains so at completion. Following due diligence during project preparatory technical assistance,[3] the project was formulated in line with the government's strategic development plans, including the Road Development Program 2007–2010 (footnote 1) which emphasized the importance of upgrading and maintaining the strategic road corridors to meet international standards. At completion, the project remains consistent with the government's priorities; improvement to the A380 Highway corridor is a priority in the National Road Development Program for 2009–2014 and the Accelerated Development Program for 2011–2015.[4]

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[1] Resolution of the President of Uzbekistan PP-535 (20 December 2006): *On Measures for Development of Common Use Roads in 2007–2010*. Tashkent.

[2] ADB. 2007. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Uzbekistan for CAREC Regional Road Project*. Manila (Loan 2403-UZB, approved on 19 December, for $75.3 million).

[3] ADB. 2006. *Technical Assistance to the Republic of Uzbekistan for Preparing the Regional Infrastructure (Roads) Project*. Manila (TA 4889-UZB, approved on 8 December, for $300,000).

[4] The government issued the Accelerated Development Program (2011–2015) (ADP) and updated the National Road Development Program (2009–2014), under Presidential Resolution No.1446, dated 21 December 2010. In the ADP, the cost of rehabilitation and upgrade of the road corridor from Beynau to Andijan (A380 and A373) was about 50% of the total cost of the entire program. In addition, the ADP provided financing for the procurement of modern construction equipment, as well as investments to improve institutional effectiveness, planning, and project management, among others.

5. The project was in line with ADB's country strategy and program for 2006–2010[5] and continues to be consistent with the current country strategy for 2012–2016.[6] Both strategies emphasize strengthening Uzbekistan's regional connectivity and trade through investments in CAREC transport corridors, as well as improving governance, management efficiency, and institutional capacity in the transport sector. The project continues to be consistent with the relevant CAREC sector strategies, including the Transport Sector Strategy for 2008–2018 and the refined CAREC Transport and Trade Facilitation Strategy 2020.[7] The refined strategy emphasizes the need for establishment of competitive trade corridors such as CAREC Corridors 2 and 6, as well as network sustainability.

B. Project Outputs

1. Road Development Component

6. At appraisal, the project comprised reconstruction of 131 km of the A-380 Highway in Uzbekistan's Karakalpakstan Republic and in Khorezm Province, comprising two sections—section 1 (km 876–916, with a length of 40 km) and section 2 (km 490–581, with a length of 91 km). At completion, 40 km section 1 was improved to a two-lane asphalt concrete pavement road within the existing right-of-way, as originally designed, while 91 km section 2 was upgraded to a four-lane highway with reinforced cement concrete pavement to meet Category I standards, with a design speed of 120 km/hour, in place of the original two-lane asphalt pavement design.[8] This design change on section 2 was requested by RF in May 2009, following the presidential resolution.[9] ADB assessed the government's proposal and approved the request as a major change in the project scope on 27 October 2009. The government funded the increased cost of upgrading, including the cost of associated supervision consultant services. Road accessories and facilities (e.g., road guard rails, road markings, road signs, and pedestrian sidewalks) improved safety and convenience for road users.

7. Although the defect liability period ended in July 2012, the taking over of section 1 by Uzavtoyul[10] was completed in September 2014, with delays of more than 2 years because of (i) government procedural delays, and (ii) delays by the contractor in meeting the technical specifications for the road shoulders. As a result, the road pavement was not adequately maintained for a short time. After September 2014, Uzavtoyul has been maintaining the pavement efficiently and effectively. The defect liability period for section 2, which was funded by the government, ended in April 2015 and Uzavtoyul took over the section in August 2015 after completion of internal government procedures and issuance of a performance certificate. The payments to the contractors and consultant were withheld by the government due to this delay in taking over of the completed section. With ADB assistance, this issue was resolved and the government agreed to make the remaining payments by 31 December 2015. After the taking over, Uzavtoyul has had ownership of both sections, including responsibility for regular maintenance.

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[5] ADB. 2006. *Country Strategy and Program for Uzbekistan (2006–2010)*. Manila.
[6] ADB. 2012. *Country Partnership Strategy; Uzbekistan (2012–2016)*. Manila.
[7] CAREC. 2007. *CAREC Transport and Trade Facilitation Strategy*. Manila; ADB. 2014. *CAREC Transport and Trade Facilitation Strategy 2020*. Manila.
[8] The project roads were designed primarily in accordance with *gosudarstvennyy standart* (GOST), which had been widely used by the Russian Federation and the Commonwealth of Independent States. Most technical requirements also met American Association of State Highway and Transportation Officials standards.
[9] Presidential Resolution No. PP-1103, *Measures of Reconstruction and Development of the Uzbek National Highway for 2009–2014*, issued on 22 April 2008.
[10] Uzavtoyul is a state joint stock company with responsibility for construction and maintenance of national highways.

8. At appraisal, the government requested that earthwork be outsourced to national contractors for both sections to expedite the physical progress. This earthwork was funded directly by the government. The national contractors caused delays, which resulted in delayed commencement of the subsequent works by the international contractors. A major reason for the delays was poor quality of the completed earthworks and additional time was spent to correct the deficiencies before providing physical access of the site to the international contractor. At completion, the quality of completed road pavement was good and complied with technical specifications.

2. Road Sector Sustainability Component

9. At appraisal, the RSS component comprised (i) institutional support for road sector planning and management system (RSS subcomponent 1), and (ii) establishment of a road equipment pool company (RSS subcomponent 2). RSS subcomponent 1 was designed to focus on promotion of road user charges, introduction of a computerized road network database system and road sector planning and management systems, preparation of a time-bound program to implement these systems nationwide, and training for the dedicated RF staff to strengthen capacity in road sector planning and management. A planning unit was to be established in RF. For RSS subcomponent 2, the project planned to enable the establishment of a road equipment pool company (REPC) by the government. The road equipment for the REPC was to be supplied under the project. The REPC was intended to provide services by renting the road equipment to be procured to road construction and maintenance enterprises on a full cost-recovery basis. A feasibility study for privatizing the REPC in the longer term was to be conducted. Advisory support to the REPC was also to be provided, including development of business and marketing plans; an equipment service charge system; and proper administrative, accounting and financial procedures.

10. **RSS subcomponent 1: road sector planning and management system.** During implementation, the consultant for RSS subcomponent 1 (i) assessed RF's financing system, (ii) examined the institutional structure and capacity of the country's road sector, and (iii) provided training to road sector staff.[11] The RSS subcomponent 1 consultant found that (i) RF operates according to international best practice, but revenue reform is desirable; (ii) the potential to introducing a public–private partnership (PPP) is limited in the near term, as it would require considerable modification of existing legislation, meaning a limited number of schemes would be eligible for private investment; and (iii) the revenues and funding plan of RF are sufficient to allow maintenance of all the roads under its jurisdiction to a good quality level. The RSS subcomponent 1 consultant also designed an institutional structure for a road asset management system (RAMS) and introduced the Highway Development and Management Model 4 (HDM-4); trained staff from RF and other road institutions; and demonstrated pilot activities, consisting of a data collection survey on selected sample roads, with data stored in the developed database, and testing of HDM-4 analysis. The collected data was handed over to RF and Uzavtoyul. Appendix 8 provides details of this subcomponent.

11. It is too early to assess the impacts of RSS subcomponent 1 outputs. The various studies produced by the consultants are being reviewed by government agencies and provide inputs for potential implementation in the future. Although Uzavtoyul continues to carry out road maintenance using its state owned enterprises, there is a move towards maintenance planning and allocation of resources based on demand. The ongoing CAREC Corridor 2 Road

[11] Egis BCEOM International, France, was awarded the contract on 16 April 2009. On 13 May 2009, the contract was signed at a contract price of €491,780.00 and $680,100.00, equivalent to $1,335,546 in total, and became effective in September 2009.

Investment Program includes capacity development programs for Uzavtoyul to enhance its ability to plan practical maintenance works and optimize available resources, and mainstream the system into sector operation.[12]

12. **RSS subcomponent 2: establishment of a road equipment pool company.** At appraisal, it was envisaged that the government would establish an REPC, with the ADB loan to finance road equipment that would be owned by the REPC. Under RSS subcomponent 2, the state unitary enterprise, Transyo'Iqurilish (TYQ), was registered as the REPC in March 2008, with the assistance of the RSS subcomponent 2 consultant.[13] TYQ is currently owned by the Cabinet of Ministers of the Republic of Uzbekistan, has the rights of an independent economic entity, and is governed under the legislation of the Republic of Uzbekistan. TYQ has an independent balance sheet with its own bank accounts, name and trademark, seal, and other properties. TYQ continues to supply equipment on a lease basis to several national projects for reconstructing national highways and major city roads,[14] and maintains a healthy financial condition. During implementation, the government constructed storage facilities for the procured equipment and also helped construct TYQ's regional operation center buildings.

13. **Road construction equipment.** Under RSS subcomponent 2, road construction equipment was procured that comprised the major allocation under ADB financing. At appraisal 319 units of machinery and equipment were planned to be procured, with 283 units supplied at completion, including earthmoving equipment, asphalt mixing plants, rock crushing and screening plants, cold milling equipment, vibrators, paver and rollers, and dump trucks. The quantity was reduced because one lot was canceled after bidding was held three times.[15] The bidding failure resulted from (i) non-responsiveness of submitted bids, and (ii) unexpectedly high bid prices by the first-ranked bidder. Appendix 9 lists the procured equipment and its current status.[16] TQY has continued to purchase other machinery using government funds.

C. Project Costs

14. At appraisal, the total project cost was estimated to be $173.40 million. ADB was to provide a loan for $75.30 million (43.4%), including $0.55 million for recurring costs during implementation, with the government to finance $98.10 million (56.6%), including an estimated $22.2 million equivalent for taxes and duties. During implementation, $3.0 million (4.0% of the original loan proceeds) was canceled on 30 November 2010, due to partial cancellation of the goods procurement packages (para. 13). At completion, the actual project cost was $224.90 million, including $59.88 million financed by ADB (26.6%) and $165.02 million (73.4%) by the

[12] ADB. 2010. *Recommendation and Report of the President to the Board for a Proposed Multitranche Financing Facility to the Republic of Uzbekistan for the Central Asia Regional Economic Cooperation Corridor 2 Road Investment Program*. Manila.

[13] A consortium of Renardet S.A., Switzerland, and Rhythm Plus, Uzbekistan, won the contract at the price of $200,830.00. The Ministry of Foreign Economic Relations, Investment and Trade declared the contract effective on 28 November 2008.

[14] Major works are (i) reconstruction of km 832–866, km 812–832 and km 916–964 of Highway A-380 "Guzar–Nukus–Kungrad–Beyneu" in the Republic of Karakalpakstan, (ii) reconstruction of km 935–950 and km 962–982 of Highway M-39 in Djizak region, (iii) reconstruction of km 1,265–1,315 of Highway M-39 in Kashkadarya region, (iv) reconstruction of km 190–196 and winter maintenance of km 116–190 of highway A-373 in the Namangan region, (v) reconstruction of km 939–950 of highway M-39 in the Sirdarya region, (vi) construction of a landing strip for Airport "Tashkent-3", and (vii) reconstruction of Abidov Street and Shakhrisabzkaya Street in Tashkent City.

[15] The equipment planned to be procured under the lot was subsequently procured under the CAREC Corridor 2 Investment Program (footnote 12), Tranche 2 (Loan 2746-UZB, approved on 31 March 2011, for $240 million).

[16] Itochu Corporation, Japan, was awarded six contracts and delivered 99 units in total, while Road International, Korea, won one contract and supplied 170 units.

government.[17] The actual cost was 29.7% higher than the appraisal estimate. The increase was caused mainly by a change in the design of section 2 (para. 6). The loan savings of $12.42 million were canceled at loan account closure on 31 January 2013. At appraisal, the cost of reconstructing section 2 was estimated at $47.6 million using asphalt concrete pavement. In 2009, section 2 was redesigned in accordance with the Presidential Resolution, which increased the cost estimate to $192.04 million, and a civil works contract (excluding earthworks and sub base works) was awarded for $132.2 million. At completion, the actual cost of section 2 was $113.10 million, excluding earthworks and sub-base works.[18] The actual cost of section 1 was $10.41 million, excluding earthworks and sub-base works.

15. The awarded contract amount for the project management and construction supervision (PMCS) consultant under the road development component was 14.6% lower than the appraisal estimate owing to lower bid prices; the actual cost was $1.53 million at the loan closing date. The government extended the PMCS consultant contract at its own expense following loan closing.[19] The RSS subcomponent 1 consultant completed all their tasks at a slightly lower contract amount than the appraisal estimate. The RSS subcomponent 2 consultant also performed as originally designed, within the original budget. The cost of the individual procurement consultants engaged under the project was approximately as estimated at appraisal, although RF engaged two consultants (the first expert terminated his contract early for personal reasons). The expenditure for TYQ was $1.09 million, increased by $0.90 million because of the cost of storage for procured equipment and TYQ's regional operation centers' buildings (the government covered those costs).

16. The total contract amount for the two goods packages was 5.6% lower than estimated at appraisal because of cancellation of one lot (para. 13). The ADB loan proceeds were also allocated as a recurrent cost and used to finance project implementation unit (PIU) operations. At loan closing $0.46 million had been used for recurrent costs, $0.10 million less than the appraisal estimate. The detailed actual versus appraisal costs for each project component are in Appendix 2. A summary of contracts financed by ADB is in Appendix 10.

D. Disbursements

17. The loan was approved on 19 December 2007, signed on 14 April 2008, and became effective on 2 May 2008. During implementation, the direct payment procedure was used for all payments for civil works, consulting services and goods, while RF set up the imprest account at a local commercial bank on 11 April 2008 for payment of recurrent costs. The statement of expenditure procedure was used to reimburse eligible expenditure and to liquidate and replenish the imprest account for individual payments of less than $100,000, mainly for the PIU-related expenses and for payments to financial auditors. The bank account holding the imprest account was closed on 2 October 2012 and the remaining advance was repaid to ADB. All disbursements were made in accordance with ADB's *Loan Disbursement Handbook* (2007, amended from time to time). Loan disbursements started on 4 June 2008, and progressed smoothly for civil works and consulting services. The loan proceeds of $59.88 million were disbursed. The loan account was closed on 31 January 2013, and the undisbursed amount of

[17] The project cost at completion includes the expenditure for the project management and construction supervision consultant's services up to 31 July 2014, but excludes the amount to be adjusted under the civil works contract for section 2 and the contract for the project management and construction supervision consultant.

[18] The two national contractors (Toshkent and Romitan) were awarded contracts for earthworks and sub base course works for sections 1 and 2. At completion, the cost was $20.0 million, which was financed by the government.

[19] The government amended the contract on 10 September 2012 to extend the PMCS consultant's contract until the end of the defect liability period of section 2. The expenditures until the loan closing were financed by the ADB, while expenditures afterwards were financed by the government.

$12.42 million was canceled. The details of the annual disbursement of the loan proceeds are in Appendix 3.

E. Project Schedule

18. **Road development component.** At appraisal, the civil works contracts for all the sections were expected to be completed by December 2011. The civil works contract for section 1 was awarded on 22 September 2009, and completed in July 2011, while the contract for section 2 was awarded on 13 May 2010 and its work was completed in April 2014, 15 months after loan closing. The main reasons for the delays were (i) changes in the design of section 2 were proposed by RF in 2009, which involved substantial revisions to the detailed design and bidding documents; (ii) the contractor was unable to plan and manage realistic work programs and mobilize adequate resources on a timely basis; and (iii) administrative procedures within the government for taking over completed works. While the loan was closed on 30 June 2012 as planned at appraisal, the contractor for section 2 extended the work program and completed the works in April 2014 with government's funds. The PMCS consultant began works in October 2009, after the contract became effective. The consultant's contract was extended to supervise the contractor's works, and with expenditures beyond the loan closing date financed by the government.

19. **Road sector sustainability component.** At appraisal, the component was expected to be implemented by 2010, including recruitment of consultants for the two subcomponents. The recruitment of consultants was carried out smoothly; the RSS subcomponent 1 consultant (footnote 11) started work after contract effectiveness in September 2009, while the RSS subcomponent 2 consultant (footnote 13) started work after contract effectiveness in November 2008. The consultants completed all tasks to an acceptable standard within the original contract period.

20. Under RSS subcomponent 2, procurement for the two goods packages took place as outlined at appraisal and was completed in April 2009, 6 months behind the original schedule. The suppliers procured and delivered the road equipment, but some did not meet the technical specifications given in the contract. After a lengthy acceptance procedure by the government, including repair of the deficient equipment, all equipment was accepted in September 2010 and transferred to TYQ. The appraisal and actual implementation schedules are in Appendix 4, and a chronology of major events is in Appendix 5.

F. Implementation Arrangements

21. RF was the executing agency for the project. A PIU was established within RF. The PIU was responsible for implementation of the overall project, including compliance with loan agreement covenants. The first PIU director, who was appointed on 12 November 2007, had experience in project management and civil works. International procurement specialists financed under the loan assisted the PIU in recruitment of consultants and procurement of goods and civil works contractors.[20] During implementation, although its director was replaced several times, the PIU was adequately staffed in the areas of technical engineering, financial management, accounting, procurement, and contract administration, and had the necessary office space, equipment, and facilities.

[20] Other PIU personnel comprised: project coordinator, finance expert, accounting specialist, construction and road equipment engineer, lawyer, translator, secretary (administrator) and driver.

G. Conditions and Covenants

22. The project complied with most major covenants. The government ensured that (i) implementation took place as agreed at appraisal; (ii) the required counterpart funds were provided properly and on a timely basis; (iii) the project roads were rehabilitated and the road construction equipment was procured in accordance with required technical specifications; (iv) the REPC was established and it maintains financially sound operations by setting its service fee to ensure total operating expenses to operating revenues and debt to equity ratios are not greater than 80:20; (v) preventive measures to ensure health and safety were undertaken during civil works; (vi) adverse environmental impacts were minimized by implementing all mitigation measures as determined; (vii) quarterly progress reports were submitted; and (viii) the project performance monitoring system (PPMS) was established, although delays were observed during the early phase, the data was collected in accordance with the PPMS indicators, and the results were documented and submitted to ADB. The audit reports of the project and TYQ were submitted as required,[21] however delays in their submission were sometimes observed.

23. There were three covenants that were partly complied with: (i) bi-annual environmental monitoring reports were not submitted during implementation; however, the RF submitted a comprehensive environmental monitoring report at project completion; (ii) section 1 was not provided with proper maintenance works by Uzavtoyul for first 2 years, due to its prolonged taking over procedure by the government (para. 7). However, the section 1 is now covered by Uzavtoyul's maintenance system; and (iii) the operating ratio and debt to equity ratio of TYQ are marginally below the required threshold. However, with increased demand, the ratios are expected to improve in 2015. Appendix 6 shows the compliance status of major loan covenants.

H. Consultant Recruitment and Procurement

24. Consultant recruitment was undertaken in accordance with ADB's *Guidelines on the Use of Consultants* (2007, as amended from time to time). At appraisal, three consultant packages were designed, for (i) project management and construction supervision, (ii) the road sector planning and management system, and (iii) development of the REPC. All consultants were recruited following a quality-and-cost-based selection procedure.[22] The PMCS consultant and the consultant for road sector planning and management system (the RSS subcomponent 1 consultant) were recruited on 13 May 2009, and completed their tasks in September 2010; the consultant for development of the REPC (the RSS subcomponent 2 consultant) was recruited on 24 October 2008 and completed their tasks in April 2009. The RF accepted both consultants' final reports.

25. In addition to these packages, an individual consultant was contracted to assist RF in recruitment of consulting firms and procurement of civil works and goods. On 15 April 2008, the first consultant was recruited but the contract was terminated in August 2008. On 28 October 2008 a second expert was engaged; the contract was concluded in August 2009 after the consultant carried out all contractual requirements.

26. **Civil works procurement.** The procurement of civil works was carried out in accordance with ADB's *Procurement Guidelines* (2007, as amended from time to time). Originally five civil works packages were planned to be procured, comprising one for section 1 and four for section 2. However, section 2 was repackaged into three packages after a change

[21] The final submitted audit reports were confirmed acceptable.
[22] All recruitment applied a quality–cost ratio of 80:20.

in the design (para. 6).[23] On 22 September 2009, the contract for section 1 was signed, and the contractor completed all their tasks, including additional scope, in July 2011. The three civil works packages under section 2 were awarded to one contractor, although submitted bids were evaluated per package, and signed on 13 May 2010; the contractor completed works in April 2014.

27. **Goods procurement.** The procurement of goods was carried out in accordance with ADB's *Procurement Guidelines* (2007, as amended from time to time). At appraisal, two packages were designed, which were divided into 6 lots under goods procurement package 1, and 3 lots under goods procurement package 2. The bid evaluation of all lots took about 8 months from advertisement until ADB approval because suppliers' bids were incomplete. One lot under package 2 was canceled (para. 13), while the other eight lots were successfully awarded by April 2009. All the delivered goods were accepted in September 2010.

I. Performance of Consultants, Contractors, and Suppliers

28. **Individual consultants for contract and procurement assistance.** An individual procurement consultant was recruited to assist the RF in preparation of the bidding documents for civil works and goods and evaluation of the submitted bids. The consultant carried out the tasks and was responsive to RF's needs; however, the consultant ended the contract for personal reasons. Because RF needed to supplement its procurement capacity, a second international consultant was mobilized, who carried out the remaining tasks efficiently. The first consultant was rated *partly satisfactory*, due to his early termination of the contract, and the second *satisfactory*.

29. **Consultants for the road development component.** Overall, the PMCS consultant's performance was *satisfactory*. The PMCS consultant carried out all tasks given in the terms of reference, such as reviewing and modifying the detailed design to respond to the government's needs, administering civil works contracts, controlling the contractors' works quality, and preparing regular progress reports.[24] With extra inputs, they also accommodated additional works associated with the design change of section 2 within the original contract amount. However, the team leader was replaced three times, mainly because of health conditions or poor performance.

30. **Consultants for the road sector sustainability component.** The overall performance of the consultants was *satisfactory*. The RSS subcomponent 1 consultant (footnote 11) completed and submitted their final report within the original timeframe, which RF confirmed acceptable, because the draft road sector development plan, prepared by the consultants, was considered workable for the country's sector development. The RSS subcomponent 2 consultant (footnote 13) assisted TYQ in developing an efficient equipment management system; introducing proper administrative, accounting and financial procedures; and establishing an equipment costing system, which has contributed to TYQ's robust operational system and current healthy financial status.

31. **Civil works contractors.** The overall performance of the civil works contractors was *partly satisfactory*. The contractor for section 1[25] completed his works in July 2011, 7 months

[23] The actual works were packaged into four contracts, namely package B1 (entire 40 km of section 1), package B2 (30 km of section 2), package B3 (33 km of section 2) and package B4 (28 km of section 2).
[24] Dongshin Engineering Consultants, Republic of Korea, in association with Rhythm Plus, Republic of Uzbekistan.
[25] China Road and Bridge Construction (CRBC), People's Republic of China.

longer than the original contract period.[26] The delays were caused mainly by the contractors' poor capacity to execute the assigned tasks, specifically (i) insufficient planning to execute the entire works, and (ii) limited available cash flow for mobilizing the needed resources and equipment. RF took remedial actions with the local government to help the contractors procure construction materials and allow fuel imports.

32. The contractor for section 2[27] experienced significant delays and completed all tasks in April 2014, 33 months later than the original schedule, because of late mobilization of equipment and laborers, delayed handing over of site by RF, and inefficient management of executing works. Disputes between the contractor and RF over these issues led to further delays in implementation. In 2012, ADB agreed with RF that the contract will be extended beyond the loan closing date, with the remaining works funded by the government using its own budget.

33. **Goods suppliers.** The overall performance of the goods suppliers was *partly satisfactory*. Some of the goods delivered by the two suppliers did not meet the required technical specifications, and these suppliers also failed to perform associated tasks and contractual obligations, resulting in a lengthy delay to rectify the deficiencies, after which the government issued full acceptance. One supplier, Mann Ferrostaal of Germany, performed satisfactorily in supplying truck cranes.

J. Performance of the Borrower and the Executing Agency

34. The performance of the borrower (the Republic of Uzbekistan) and the executing agency (the RF under the Ministry of Finance), including the PIU, was *satisfactory*. This was the first loan implemented by RF, and it needed time and ADB's close guidance for RF to become familiar with ADB procedures and requirements, particularly for procurement and safeguards. RF was prompt in setting up the PIU and in ensuring resolution of contractual issues. There was a delay in taking over of the completed road sections by the government which affected final payments to the contractors and consultant. On 3 July 2015, the borrower confirmed to ADB that it will make all the remaining payments for completed works by 31 December 2015 (para. 7).[28]

35. As planned at appraisal, RF established an REPC (TYQ) in March 2008 and the company has been operational and in good financial position. TYQ annually reviews and amends rental fees for the equipment it owns, and updates its operational plans and rental fees in consideration of construction markets and their needs.[29]

K. Performance of the Asian Development Bank

36. Overall, the performance of ADB was *satisfactory*. The loan was administered from ADB headquarters with the active involvement of ADB's Uzbekistan Resident Mission. The loan was

[26] RF penalized both the civil works contractors and the two goods suppliers for their underperformance, following the FIDIC's conditions of contract for construction (Fédération Internationale des Ingénieurs Conseils (International Federation of Consulting Engineers) 2005. *Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer: Multilateral Development Bank Harmonized Edition*. Geneva).

[27] POSCO Engineering & Construction, Republic of Korea.

[28] ADB will monitor payment progress to ensure completion.

[29] June 2014 PCR mission- In 2010, the average rent fee was set at SUM24,317 per piece of equipment; this increased to SUM63,959 in 2013. The total number of pieces of equipment increased to 603 in 2013, from 283 in 2010, in response to increased need. Clients are increasingly varied: in 2013, 7.79% of revenues came from the private sector, up from 3.18% in 2010; and the turnover rate was 90.88% in 2013, an increase of about 5% from 2010.

delegated to the resident mission during February 2011–January 2012, and then transferred back to ADB headquarters to ensure amicable resolution of all the issues mentioned in para. 34. ADB built a sound relationship with RF and relevant agencies over the course of the project and provided timely guidance and support to RF during implementation by giving prompt feedback in the course of procurement of civil works and goods, and consultant recruitment; and holding close consultations for timely and practical resolution of financial, technical and contractual issues. It fielded regular review missions to support project implementation and to resolve contractual issues. Safeguards-related requirements were monitored after a full-time safeguard specialist was stationed in the Uzbekistan Resident Mission from 2010. The specialist provided day-to-day support to RF for ongoing projects, which contributed to enhancement of RF's capacity in environment and involuntary resettlement safeguards. The circulation of this PCR was delayed since the physical completion was achieved only in April 2014. This is consistent with PAI 6.07A para. 2.

III. EVALUATION OF PERFORMANCE

A. Relevance

37. The project is rated *highly relevant* at both appraisal and completion, since the project's impacts and outcomes are consistent with the government's development objectives, ADB's country partnership strategies, the relevant CAREC strategies and ADB's strategic objectives at the time of approval and completion of the project. Upgrading of the A380 highway has remained a top priority in the government's road sector investment program (paras. 4 and 5). The change in pavement from asphalt concrete to reinforced cement concrete on the section 2 resulted in an all-weather road that can withstand heavy vehicles, and enhanced road sustainability. The road sector sustainability component responded to the government's priority of improving its operational efficiency and quality. The transport sector's institutional frameworks were also proposed under the project (para. 9). In summary, the project design at completion was highly relevant to the development needs of the country.

B. Effectiveness in Achieving Outcome

38. The project is rated *effective*, because the project achieved most of their outcome targets.

39. **Road development component.** The component was *highly effective* since the project achieved all the outcomes as designed at appraisal, and benefited road users through reduced vehicle operating costs and travel times.[30] The traffic volume on project road sections also increased, in part due to the improved road condition. The annual average daily traffic in Khorezm increased from 1,900 in 2007 to 4,248 in 2013, and in Karakalpakstan from 360 in 2007 to 1,618 (at km 916) and 9,687 (at km 876) in 2013. The improvement in the project roadway contributed to the increase in the number of cross-border trucks on the A380 at the Daut-ata customs post from 10 trucks per day in 2007 to 19 trucks per day in 2013, although the increase is not attributable solely to the project.[31] Six accidents were reported on the project sections in 2013. This was significantly lower than the 50 accidents estimated for 2007 at

[30] At completion, travel times were halved between both Miskin and Tortkul (from 30–40 minutes to 15–20 minutes) and Uzbekistan town and Khazarasp town (from 3 hours to 1.5 hours).

[31] According to the CAREC Corridor Performance Measurement and Monitoring Annual Report for 2013, (i) CAREC subcorridor 6a is one of the fastest of all CAREC corridors, with a low coefficient of variation in terms of speed with delay; and (ii) the sections in Uzbekistan along the subcorridor offer better driving conditions than the sections in other countries. (CAREC Trade Facilitation. 2014. *CAREC Corridor Performance Measurement and Monitoring Annual Report 2013*. Manila).

appraisal. Nevertheless, the fatal accidents have raised concerns on road user safety, in particular their increased vehicle speeds. A road safety improvement component is currently being implemented under Loan 2772-UZB.[32]

40. **Road sector sustainability component.** The component was *effective* since all outcomes were achieved except one relating to developing a road financing plan using the new RAMS. Currently, implementation of RAMS outputs from this project is ongoing and is expected to be completed by 2016. The road financing plan will be prepared subsequently. All the other outcomes related to the road maintenance budget and its institutional system and TYQ's financial performance were achieved. With respect to road maintenance, the government increased the budget for routine and periodic maintenance during 2007–2013 by 522.14% in local monetary terms, as shown in Appendix 7, while the HDM-4 model, established by the RSS subcomponent 1 consultant, is being used to better maintain the country's national highways. TYQ's successful establishment and stable financial, operational and institutional growth are confirmed by its debt–equity ratio of 80.7:19.3 and operating ratio of 78.1% in 2013, which meet the threshold stipulated in the loan agreement and show its healthy financial condition. The equipment and machinery supplied under the project are currently being used throughout the country and providing much-needed benefits. In summary, majority of the outcomes under this component were achieved.

C. Efficiency in Achieving Outcome and Outputs

41. The project is rated as *efficient*, because all outputs were achieved and the project remained economically viable at completion. At appraisal, the economic internal rate of return (EIRR) calculated for the road development component was estimated at 17% for section 1 and 34% for section 2; the reevaluated EIRRs are 19.9% for section 1 and 13.8% for section 2, with a combined road development component's EIRR of 14.4%. The reevaluated EIRR remains above the ADB threshold of 12%, and the project is therefore considered economically viable. The primary differences between the appraisal and reevaluation EIRRs result from (i) revised economic costs based on actual costs, which include cost increases caused by the design changes for section 2; (ii) longer construction periods caused by civil works delays; (iii) changes to methodology of economic analysis, and (iv) revisions to traffic forecasts, traffic volumes and the economic growth rate. Details of the economic reevaluation are in Appendix 11.The financial internal rate of return for RSS subcomponent 2 could not be reevaluated because the accounting data maintained by TYQ were not adequately compiled to segregate revenue and expenses incurred for the 283 units of equipment procured under the project. TYQ's financial statements present financial information for its entire operation, with no segregation by equipment.

42. The project completion was delayed and cost increases experienced under the road development component. They were caused mainly by the design upgrade section 2 (paras. 6, 14 and 18). In addition, the poor performance of the national contractors for earthwork lowered the efficiency of implementation (para. 8) although it was outside the scope of ADB financing. The road sector sustainability component experienced delays at procuring the road maintenance equipment (para. 27); however it was eventually implemented as originally designed in terms of schedule and cost.

[32] ADB. 2011. *Report and Recommendation of the President to the Board for a Proposed Multitranche Financing Facility to the Republic of Uzbekistan for the Second Central Asia Regional Economic Cooperation Corridor 2 Road Investment Program*. Manila.

D. Preliminary Assessment of Sustainability

43. The project is considered *likely to be sustainable*. RF revenue increased significantly (611%) during 2006–2013, while operation and maintenance (O&M) expenditures, and for routine maintenance in particular, have risen both in monetary terms (in Uzbekistan Sum) and as a share of RF revenue. The increase in RF receipts is not considered to be temporary since RF revenue forecasts up to 2020 show a 133% increase in receipts from the corporate levy alone, indicating a sound revenue source for RF. Further, the design of section 2 was upgraded to cement concrete pavement, which contributed to road durability (para 6).

44. The 2006 O&M expenditure, mainly for periodic and routine maintenance works, was 21.7% of total road sector expenditures. This expenditure share increased to 22.4% in 2013. However, in monetary terms, this represented an increase of 502% in O&M expenditures. Differentiating between periodic versus routine maintenance, the share of routine maintenance in total expenditure grew from 11.8% in 2006 to 22.4% in 2013, an increase of 1,003% in monetary terms. While routine maintenance expenditures have been growing since 2006 as a result of the increase in RF receipts, the increase in routine maintenance expenditures since 2012 far outpaces the increase in RF receipts, as well as increases in most other road expenditure categories. Such a sharp increase in O&M expenditures, especially routine expenditures, indicates the government is placing a higher priority on road maintenance. A summary of RF's expenditures relating to O&M is included in Appendix 7.

45. In Uzbekistan, road transport remains vital for the transport of both goods and people. The total volume of goods transported on the roads increased by 45.23% during 2008–2013 (from 950.40 million tons to 1,387.30 million tons), while the number of passengers using road transport increased by 34.37% during the same period (from 5,126.80 million to 6,893.90 million people).[33] These trends are expected to continue. The decision to upgrade the design from asphalt to cement concrete pavement will positively impact the sustainability of the project as the concrete pavement is expected to increase the service life and further reduce life cycle cost of the roadway through reduced O&M expenses.

46. The timely establishment of TYQ has enabled it to become a profitable institution with steady growth. It has contributed to efficient road maintenance services in Uzbekistan, which will enhance the project's sustainability. The implementation of the RAMS component has been largely managed by the consultants. There needs to be a stronger ownership from the government for overall and sustained implementation of the RAMS in the country. A policy dialogue to institutionalize these outputs needs to be pursued in future. Ongoing projects under CAREC Corridor 2 Road Investment Program and proposed new program will continue to enhance RAMS and build a strong ownership.

E. Impact

47. The project impact is assessed to be *significant* based on the contribution to regional cooperation and local economy.

48. **Regional economic impact.** The impact intended at appraisal is likely to be achieved. The inter-regional trade volumes between Uzbekistan and surrounding countries, including Afghanistan, Kazakhstan, Kyrgyz Republic, Tajikistan and Turkmenistan, have been

[33] The data was monitored and recorded by RF in the project performance management system implemented under the Second Central Asia Regional Economic Cooperation Corridor 2 Road Investment Program, Tranches 1 and 2 (June 2014).

increasing.[34] CAREC Corridor 6 (site of the project roads) has two border-crossing points—Termez at the Afghanistan border and Daut-ata in Karakalpakstan at the Kazakhstan border—where border crossing times have been reduced. The adjoining sections are being improved under ongoing investment programs; the government has committed to allocating the necessary budget support as a priority (para. 4), and the funding for the transport sector has been increased (para. 44). Recent road transport infrastructure developments are benefiting cross-border trade, and regional trade is expected to further increase.

49. **Socioeconomic impact.** The impact of the project was confirmed significantly positive. During the ADB project completion review mission, interviews were held with local people residing along the project roads.[35] These revealed the overwhelming positive responses of communities to the project in terms of its contribution to quality of life and economic activity, including through savings in travel time (footnote 30), more comfortable rides to key market centers, and ability to deliver more products to markets centers. The interview results also show increased trip frequencies, improved economic efficiency and higher income levels, and expanded trading opportunities. Evidence is generally positive regarding the overall impact on local populations—travel patterns and behaviors changed as a result of road improvements, while the cost per trip declined because of various factors, including increased availability of public transport and lower fares. Key informant interviews suggested an increase in the frequency of public transport buses due partly as a result of shorter travel times and smoother roads. It was observed that economic activities around the project area have increased and diversified, supported by an increase in the number of *chaikhanas* (tea houses), gas stations, motels, and camps for truckers along the project roads. The chairman of the *mahalla* (urban division) committee also explained that new business opportunities were emerging, particularly for the export of local agriculture products to Kazakhstan through the A380 highway, because the travel time to Kazakhstan has been shortened, allowing perishable items, such as agriculture products and processed foods, to be sold to markets in Kazakhstan in better condition.

50. **Environment impact.** The project was classified as environmental category B at appraisal. An initial environmental examination (IEE) was carried out during project preparation in accordance with the ADB *Environment Policy* (2002) and the country's relevant laws and resolutions, and found no significant impact.[36] The relevant mitigation measures for identified site-specific environmental impacts were proposed in the IEE, and were included in the environmental management plan (EMP). The contractors prepared a site-specific EMP, together with a safety, health, and environment control plan, which was approved by the PMCS consultant for both of the project sections and revised as needed during construction. They also implemented environmental mitigation activities as stipulated in the approved site-specific EMPs, including obtaining permissions as needed in compliance with government regulations, regularly monitoring environmental quality, and reporting monitoring results to the PMCS consultant and

[34] Trade volumes between Uzbekistan and the surrounding Commonwealth of Independent States member countries (Kazakhstan, Kyrgyz Republic, Tajikistan and Turkmenistan) increased by 54.8% from 2007 ($2.08 billion) to 2013 ($3.23 billion). International Monetary Fund e-Library Data. http://elibrary-data.imf.org (accessed 5 January 2015).

[35] Findings were based on interview surveys held during the ADB's project completion review mission in April–May 2014.

[36] In accordance with the Cabinet Minister Resolution 491/2001, all other statutory clearance were obtained during civil works, including opinions from the government's Ecological Expertise as well as relevant permits to use river water, dispose of spoiled material, and operate mixing plants. Air and noise quality during construction period was regularly monitored and reported to the Republic of Karaklapakstan's Nature Protection Committee.

the executing agency. At completion, no residual impact was recorded by local authorities and no complaints received from people living along the project roads.[37]

51. **Social safeguards impact.** At appraisal, the project was classified as involuntary resettlement category C, because no affected household was identified. However, as a result of the revision of the detailed design of section 2, two affected cases were identified and confirmed as eligible. Those affected people were compensated in 2010 in accordance with the country's relevant regulations and resolutions and the ADB *Involuntary Resettlement Policy* (1995). A land acquisition and resettlement plan was prepared in 2009, and an implementation monitoring report prepared in November 2010 and submitted to ADB, which was disclosed on the ADB website.

IV. OVERALL ASSESSMENT AND RECOMMENDATIONS

A. Overall Assessment

52. The overall assessment of the project is *successful* based on the assessment that it is *highly relevant, effective, efficient,* and *likely to be sustainable*.

B. Lessons

53. The key lessons learned from the project are as follows:

(i) **Need for including all related works in the scope of work for civil works contractors.** For the road development component, earthworks and the construction of the subbase were excluded from scope of work of the international contractors. This reduced the efficiency of the construction works, because the national contractors were unable to complete works of acceptable quality as designed and it took considerable time to rectify the defects. These works should have been integrated within the overall scope of the civil works.

(ii) **Need for timely taking over of completed project sections by the government.** At completion, the taking over of section 1 by Uzavtoyul was delayed due to administrative problems within the government (para. 7). This contributed to poor maintenance after the defects liability period. This issue was resolved in 2014. Future taking over of completed road sections needs to be conducted in a timely manner by the government.

(iii) **Need for careful assessment of project management and construction supervision consultant's qualification.** The PMCS consultant's performance was found to be generally satisfactory. However, the team leader was replaced three times during implementation, which affected the progress of civil works. In future, CVs of the candidates should be assessed carefully to ensure highly qualified and experienced experts are selected, with a preference for permanent staff of the consulting firm.

(iv) **Need for minimizing staff turnover in the executing agency during implementation.** The PIU's project director was changed frequently affecting the project management efficiency. Such frequent changes of the project director should be minimized.

[37] Interviews with households located close to the reconstructed section, held during ADB's project completion review mission, suggested that the contractor carried out watering during site cleaning and ramming of shoulders, which prevented households from being unduly affected by dust.

(v) **Higher ADB financing for civil works components**. The project completion review mission noted that ADB financing for these components was only 2.8% of the total civil works costs, against 14.9% at appraisal. This is rather marginal compared to the resources spent administering the project. For efficient use of ADB resources, ADB financing of civil works should be at least 50% of project costs for projects of this size. It is noted that for other components, ADB financing was 100%, which helped to resolve the disputes efficiently.

(vi) **Regular assignment of the PIU's representatives at the project sites.** For future projects, it is recommended that the PIU assign a representative to the project site to monitor the civil works progress closely with the construction supervision consultants, which will help the PIU identify issues at early stage and take prompt actions for resolution.

C. Recommendations

1. Project Related

54. **Project supervision**. ADB should follow-up with RF to ensure all remaining payments due out of project counterpart fund financing to the contractors and consultant are made by 31 December 2015.

2. General

55. **Project readiness**. For future projects (proposed Third MFF in 2016), it is recommended that ADB carefully review project readiness during preparation, taking into consideration RF's capacity. For instance, consultant recruitment and procurement of civil works and goods should be carried out carefully in advance with RF supervision. The project experienced a lengthy procurement procedure under the goods supply packages, including cancellation of one lot, which could have been avoided if the bidding documents, including technical equipment specifications and cost estimates were prepared comprehensively, and bids advertised in the early stage of project implementation.

56. **Early set-up of a robust project performance monitoring system.** The PPMS should have received more attention by RF throughout the project. Quantitative performance monitoring indicators should be established at project preparation stage to measure expected socioeconomic benefits and determine the project's impacts. For future projects, detailed guidance should be provided at project preparation stage on establishment and implementation of PPMS. The project preparatory technical assistance should include a specific activity in this regard.

57. **Enhance road subsector sustainability**. The government should continue its efforts to enhance road subsector sustainability by continuing to implement RAMS across the country. ADB should continue its policy dialogue and enhance awareness at higher levels of the government regarding expanding of the RAMS, systematic maintenance of national highways, and adoption of new mechanisms to ensure financial sustainability of road maintenance, e.g., by introducing PPP modalities, and creating a stronger competition in the road subsector. Specific components should be included in future investment programs.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Indicators/Targets		Data Sources/Reporting Mechanisms
	Appraisal	**Actual**	
Impact Sustainable economic development and increased trade	**By 2018:** Increased transport sector share of gross domestic product from about $900 million (2005 estimate) to $1.8 billion. Increased external trade with Kazakhstan from about $700 million (2006) to $1.5 billion. Increased local trade in the project areas reflected by increased the number of domestic trucks from 1,000 trucks (2007) to 2,000 truck.	**Likely to be achieved** **Achieved** External trade with Kazakhstan was $3.23 billion in 2013. **Likely to be achieved**	National socioeconomic statistics from Central Statistics Office Regular classified traffic count
Outcome Improved regional connectivity and an adequate, efficient, and sustainable road network in Uzbekistan	**By 2013:** Increased total traffic volume of A-380 in Republic of Karakalpakstan from 360 vpd in 2007 to 800 vpd and in Khorezm from 1,900 vpd to 3,600 vpd. Increased number of cross-border trucks on A-380 (Daudata Custom Post) from 10 trucks/day (2007) to 17 trucks/day. Accident rate reduced by 10% on A-380 highway from 50 accidents per year (2007 estimate). Recommendations for improving road sustainability implemented with road maintenance budget increased from 20% to 30% of the total budget. Road financing plan prepared by the newly developed system. REPC's financial performance maintained at 80:20 debt–equity ratio and 80% operating ratio.	**Achieved** In 2013, the AADT in Karakalpakstan increased to 1,618 (km 916) and 9,687 (km 876), and in Khorezm increased to 4,248. **Achieved** Cross-border trucks increased from 10 trucks/day (2007) to 19 trucks/day (2013). **Achieved** In 2013, there were 3 fatal accidents, 2 serious accidents and 1 minor accident recorded on the project roads, an 88% reduction from 2007. **Achieved.** **Not achieved.** **Achieved.** Debt-equity ratio of 80.7:19 3 achieved for 2013. Operating ratio of 78.1% achieved for 2013.	National, provincial, and district socioeconomic statistics from Central Statistics Office ADB's project completion report and project performance evaluation report Periodic classified traffic counts and accident data system Freight Forwarder Association statistics Government resolution Road Fund annual budget ADB's project performance evaluation report Financial statement
Outputs 1. Reconstructed road sections of A-380 between Guzar and Daut-ata border. 2. Comprehensive road sector planning and	**By 2012:** 131 km road reconstructed on time, within budget, and meeting technical specifications. Pavement international roughness index of less than 3 m/km. Road sustainability strategy is prepared. Computerized road sector planning	**Achieved** By July 2011, a 40 km section was completed at km 876–916, while the remaining 91 km of the km 490–581 section was completed in April 2014. **Achieved** **Achieved** **Achieved**	Consultant's progress reports ADB review missions

Design Summary	Performance Indicators/Targets		Data Sources/Reporting Mechanisms
	Appraisal	Actual	
management system introduced at the Road Fund	and management system installed. Database system developed and tested. Database manual developed. The system tested. 30 Road Fund staff trained. Long-term system improvement program developed.	**Achieved** **Achieved** **Achieved** **Achieved**	
3. Road sustainability enhanced.	Guidance for development of the road equipment company prepared. Business plan prepared. About 300 units of road equipment purchased. 20 staff trained.	**Achieved** **Achieved** Business plan prepared by April 2009. **Partly achieved** 283 units of road and bridge construction equipment procured, while a package was cancelled due to unsuccessful bidding. **Achieved** Training for 25 staff of REPC held in March 2009.	

Actual Milestones		**Inputs at Appraisal** ($ million)		**Actual Inputs** ($ million)	
1. Road development component:					
1.1 Recruitment of procurement specialist:		1. Road Development Component	63.81	1. Road Development Component	146.43
1st recruitment	April 2009				
2nd recruitment	October 2009				
1.2 Recruitment of project management and construction supervision	May 2009	2. Road Sector Sustainability Component	56.66	2. Road Sector Sustainability Component	54.50
1.3 Award civil works contracts					
Section 1	September 2009				
Section 2 (B2, 3, and 4)	May 2010	3. Taxes and duties	22.20	3. Taxes and duties	21.69
1.4 Completion of civil works					
Section 1	July 2011	4. Recurrent costs	0.55	4. Recurrent costs	0.56
Section 2	April 2014				
2. Road Sustainability Enhancement Component		5. Contingencies	25.08	5. Contingencies	0.00
2.1 Recruitment of consultants for road sector planning and management system	May 2009	6. Financing charges during implementation	5.10	6. Financing charges during implementation	1.72
2.2 REPC set up by the government	March 2008				
2.3 Recruitment of consultants for development of REPC	October 2008				
2.4 Procurement of equipment completed	September 2010	**Estimated Project Financing** ($ million)		**Actual Project Financing** ($ million)	
		ADB:	75.30	ADB	59.88
		Government:	98.10	Government	165.02
		Total	173.40	Total	224.90

AADT = annual average daily traffic; ADB = Asian Development Bank; km = kilometer; REPC = road equipment and pool company; vpd = vehicle per day.

Source: Asian Development Bank; Road Fund, Ministry of Finance; International Monetary Fund e-Library Data. http://elibrary-data.imf.org (accessed 5 January 2015).

PROJECT COST AND FINANCING PLAN

Table A2.1: Total Project Cost

($ million)

Item	Appraisal Estimate				Actual Cost			
	ADB	Government	Total	%	ADB	Government	Total	%
A. Investment Costs								
1. Road Development Component								
a. Civil Works	9.20	52.40	61.60	35.52	4.07	139.40	143.47	63.80
b. Consulting Services								
(i) Procurement Specialist	0.24	0.00	0.24	0.14	0.22	0.00	0.22	0.10
(ii) Project Management and Supervision	1.97	0.00	1.97	1.14	1.53	1.21	2.74	1.22
Subtotal (1)	**11.41**	**52.40**	**63.81**	**36.80**	**5.82**	**140.61**	**146.43**	**65.12**
2. Road Sector Sustainability Component								
a. Procurement of Sector Planning and Management System	55.10	0.00	55.10	31.77	52.35	0.00	52.35	23.28
b. Consulting Services								
(i) Road Sector Planning and Management System	1.35	0.00	1.35	0.78	1.06	0.00	1.06	0.47
(ii) Development of REPC[a]	0.21	0.00	0.21	0.12	0.19	0.90	1.09	0.48
Subtotal (2)	**56.66**	**0.00**	**56.66**	**32.67**	**53.60**	**0.90**	**54.50**	**24.23**
3. Taxes and Duties[b]	0.00	22.20	22.20	12.80	0.00	21.69	21.69	9.64
Total (A)	**68.07**	**74.60**	**142.67**	**82.27**	**59.42**	**163.20**	**222.62**	**98.99**
B. Recurrent Costs[c]	**0.55**	**0.00**	**0.55**	**0.32**	**0.46**	**0.10**	**0.56**	**0.25**
C. Contingencies	**6.68**	**18.40**	**25.08**	**14.47**	**0.00**	**0.00**	**0.00**	**0.00**
D. Financing Charges During Implementation[d]	**0.00**	**5.10**	**5.10**	**2.94**	**0.00**	**1.72**	**1.72**	**0.76**
Total Project Cost (A+B+C)	**75.30**	**98.10**	**173.40**	**100.00**	**59.88**	**165.02**	**224.90**	**100.00**

ADB = Asian Development Bank, REPC = road equipment pool company.

[a] On-lending to REPC.

[b] A rate of 25% was applied for civil works after the loan closing of 30 June 2012.

[c] Recurrent costs include project implementation unit-related expenses, and the costs for engaging auditors and for land acquisition and resettlement.

[d] Interest during construction and commitment charges was given from the Road Fund, Uzbekistan Ministry of Finance.

Source: Asian Development Bank; the Road Fund, Uzbekistan Ministry of Finance.

Table A2.2: Project Financing
($ million)

	At Appraisal		Actual	
Source	**Amount**	**%**	**Amount**	**%**
Asian Development Bank	75.30	43.43	59.88	26.63
Government	98.10	56.57	165.02	73.37
Total	**173.40**	**100.00**	**224.90**	**100.00**

Source: Asian Development Bank; the Road Fund, Uzbekistan Ministry of Finance.

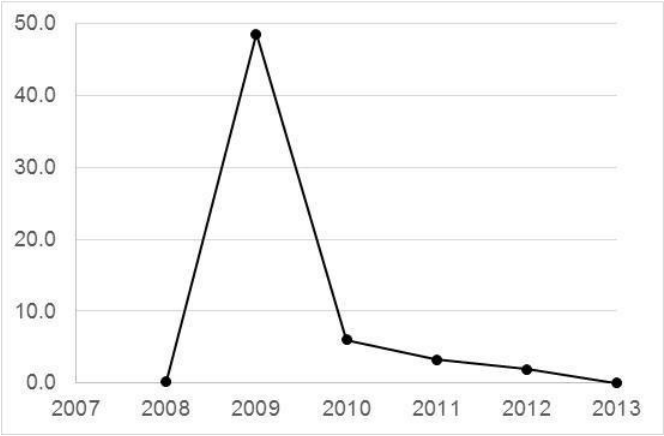
DISBURSEMENT OF ADB LOAN PROCEEDS

Table A3.1: Annual and Cumulative Disbursement of ADB Loan Proceeds
($ million)

	Annual Disbursement		Cumulative Disbursement	
	Amount	**% of Total**	**Amount**	**% of Total**
2008	0.222	0.37	0.222	0.37
2009	48.534	81.06	48.756	81.43
2010	6.001	10.02	54.757	91.45
2011	3.235	5.40	57.992	96.85
2012	1.883	3.14	59.875	99.99
2013	0.002	0.01	59.877	100.00
Total	**59.877**	**100.00**	**59.877**	**100.00**

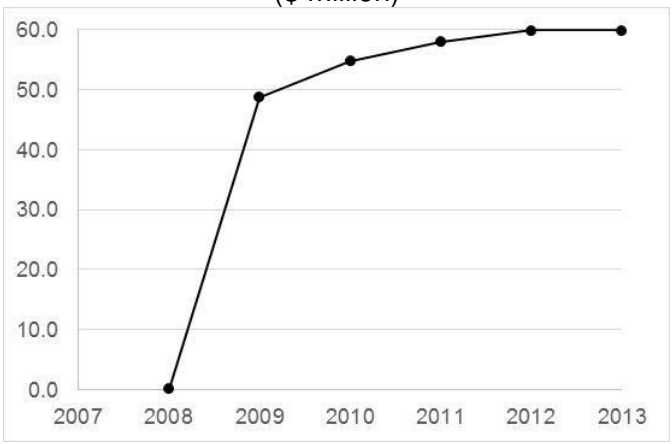
ADB = Asian Development Bank
Source: Asian Development Bank loan financial information system.

Figure A3.1: Annual Disbursement of ADB Loan Proceeds
($ million)



ADB = Asian Development Bank.
Source: Asian Development Bank loan financial information system.

Figure A3.2: Cumulative Disbursement of ADB Loan Proceeds
($ million)



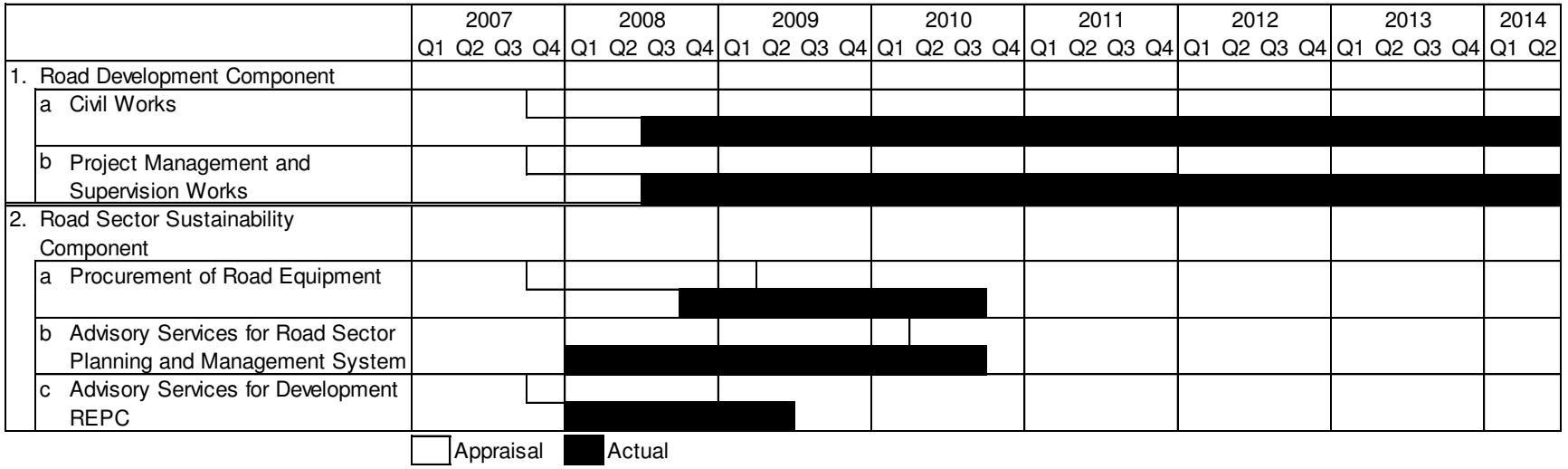
ADB = Asian Development Bank.
Source: Asian Development Bank loan financial information system.

Table A3.2: Key Disbursement Indicators

Year	Contract Award Ratio (Total cumulative amount of the awarded contract amounts/ Net loan amount %)	Disbursement Ratio (Total cumulative disbursement amount/ Net loan amount %)	Imprest Account Turnover Ratio
2008	0.61	0.29	1.3
2009	75.38	64.75	0.9
2010	91.31	75.74	1.2
2011	91.57	80.23	1.5
2012	91.58	82.81	1.1
2013[a]	91.56	82.82	1.2

[a] Up to 31 January 2013.
Source: Asian Development Bank loan financial information system.

PROJECT IMPLEMENTATION SCHEDULE



REPC = road equipment pool company.
Source: Asian Development Bank.

CHRONOLOGY OF MAJOR EVENTS

Date	Main Event
2007	
24 Jul–6 Aug	Loan reconnaissance mission fieleded.
15 Oct	Management review meeting held.
18–29 Oct	Loan appraisal mission fieleded.
12 Nov	Project Implementation Unit (PIU) was established.
16 Nov	Staff review committee held.
23 Nov	Loan negotiation held.
26 Nov	Board circulation
19 Dec	The project approved.
2008	
29 Jan–5 Feb	Consultation mission fielded.
31 Mar	REPC was established and Transyoĺqurilish (TYQ) was registered as the REPC.
11 Apr	Imprest account was set up at the local commercial bank.
14 Apr	Loan agreement was signed.
15 Apr	The contract with the first individual international procurement specialist was signed.
30 Apr–6 May	Loan inception mission fielded.
2 May	Loan effectiveness declared.
4 Jun	Loan disbursement started.
13 Aug	The contract with the first international procurement specialist was completed.
24 Oct	The contract with the RSS consultant for development of a road equipment and pool company (subcomponent 2) was signed and awarded.
28 Oct	The contract with the second individual international procurement specialist was signed.
2009	
16 Jan	The contract with the supplier of goods (Lots 3, 4, 6, Goods Package 1) was signed and awarded.
2 Feb	The contract with the supplier of goods (Lot 5, Goods Package 1) was signed and awarded.
11–19 Feb	Loan review mission fielded.
3 Feb	The contract with the supplier of goods (Lots 2 and 3, Goods Package 2) was signed and awarded.
18 Mar	The contract with the supplier of goods (Lot 2, Goods Package 1) was signed and awarded.
2 Apr	The contract with the supplier of goods (Lot 1, Goods Package 1) was signed and awarded.
15 Apr	The contract with RSS consultant for development of a road equipment and pool company (subcomponent 2) was completed.
13 May	The contract with the project management and construction supervision (PMCS) consultant was signed. The contract with RSS consultant for road sector planning and management system (subcomponent 1) was signed and awarded.
20–26 May	Loan review mission fielded.
20 Aug	The contract with the second international procurement specialist was completed.
3 Sep	The contract with the auditor for FY 2008–2010 was signed.
22 Sep	The contract with the civil works contractor for section B1 (Km 876–916) was signed and awarded.
22 Oct	PMCS consultant commenced works
27 Oct	ADB Approved a major change in the project scope.
26 Nov–2 Dec	Loan review mission fielded.

Date	Main Event
2010	
12–16 May	Loan review mission fielded.
13 May	The contract with the civil works contractor for section B2 (Km 490–520), B3 (Km 520–553), and B4 (Km 553–581) was signed and awarded.
30 Sep	The RSS consultant for road sector planning and management (subcomponent 1) was completed.
25 Oct–4 Nov	Midterm review mission fielded.
30 Nov	Cancellation of $3.0 million of the original loan proceeds for goods procurement package.
2011	
31 July	The civil works contract for section B1 (Km 876–916) was completed.
8–12 Aug	Loan review mission fielded.
2012	
1–14 Feb	Loan review mission fielded.
7–15 May	Loan review mission fielded.
28 Jun	The contract with the auditor for FY 2011–2012 was signed.
30 Jun	Loan was closed.
31 Jul	End of defects liability period of road section B1 (Km 876–916)
17–25 Aug	Special loan administration mission fielded.
2 Oct	Imprest account was closed.
2013	
31 Jan	Loan financial account was closed.
2014	
30 Apr	Civil works contract for section B2 (Km 490–520), B3 (Km 520–553), and B4 (Km 553–581) was completed.
22 Apr–6 May	Project completion review mission fielded.
11–20 Jun	Project completion review mission fielded.
30 Sep	Taking over of road section B1 (Km 876–916) by Uzavtoyul.

STATUS OF COMPLIANCE WITH LOAN COVENANTS

Para No.	Description	Remarks/Issues
Project Management		
Article IV, Section 4.01 (a)	The Borrower shall cause the Project to be carried out with due diligence and efficiency and in conformity with sound administrative, financial, engineering, road reconstruction, business and environmental practices.	**Complied with.**
Article IV, Section 4.01 (b)	In the carrying out of the Project and operation of the Project facilities, the Borrower shall perform, or cause to be performed, all obligations set forth in Schedule 5 to this Loan Agreement.	**Complied with.**
Article IV, Section 4.02	The Borrower shall make available, promptly as needed and on terms and conditions acceptable to ADB, the funds, facilities, services, equipment, land and other resources which are required, in addition to the proceeds of the Loan, for the carrying out of the Project and for the operation and maintenance of the Project facilities.	**Complied with.** The consultants, contractors and goods suppliers were selected in accordance with ADB's relevant guidelines, and their work quality and performances were closely supervised by the executing agencies in coordination with ADB. However, some of them didn't perform their tasks at satisfactory level.
Article IV, Section 4.03 (a)	In the carrying out of the Project, the Borrower shall cause competent and qualified consultants and contractors, acceptable to ADB, to be employed to an extent and upon terms and conditions satisfactory to the Borrower and ADB.	**Complied with.**
Article IV, Section 4.03 (b)	The Borrower shall cause the Project to be carried out in accordance with plans, procedures, design standards, specifications, work schedules, business methods and construction methods acceptable to ADB. The Borrower shall furnish, or cause to be furnished, to ADB, promptly after their preparation, such plans, procedures, design standards, specifications and work schedules, and any material modifications subsequently made therein, in such detail as ADB shall reasonably request.	**Complied with.**
Article IV, Section 4.06	The Borrower shall enable ADB's representatives to inspect the Project, the REPC, the Goods and Works financed out of the proceeds of the Loan, and any relevant records and documents related to the Project.	**Complied with.** All the procured equipment was commissioned on 3 September 2010.
Article IV, Section 4.08 (a)	The Borrower shall exercise its rights under the Subsidiary Loan Agreement in such a manner as to protect the interests of the Borrower and ADB and to accomplish the purposes of the Loan.	**Complied with.**
Article IV, Section 4.08 (b)	No rights or obligations under the Subsidiary Loan Agreement shall be assigned, amended, abrogated or waived without the prior concurrence of ADB.	**Complied with.**
Schedule 5, Para. 1	The Borrower shall designate the Road Fund as the Project Executing Agency with overall responsibility for carrying out the Project in accordance with the provisions of this Loan Agreement. The Borrower	**Complied with.** The PIU, established on 12 November 2007 within the Road Fund, was fully staffed, and

Para No.	Description	Remarks/Issues
	shall establish within the Road Fund a Project Implementation Unit (PIU) for the day-to-day implementation, administration and coordination of the Project. The PIU's activities shall include, without limitation, (i) recruitment, engagement, and support of consultants; (ii) procurement of Goods and Works; (iii) detailed design and construction supervision; (iv) maintenance of the Project accounts, including supervision of the Road Equipment and Pool Company (REPC)'s accounts and financial statements; (v) monitoring and reporting on Project implementation, and (vi) provision of any supervision, coordination, support, and liaison activities necessary for the successful implementation of the Project.	equipped with the necessary office space, equipment, and facilities. During implementation, the PIU undertook the tasks listed in (i)-(vi).
Schedule 5, Para. 2	The Borrower shall appoint a qualified professional in project management with relevant road works experience, acceptable to ADB, as head of the PIU. The Borrower shall ensure that during the entire period of Project implementation, the PIU is adequately staffed with sufficient expertise and experience in engineering, financial, procurement, administrative, and secretarial staff; and equipped with the necessary office space, equipment, facilities and management information systems.	**Complied with.** The PIU engaged qualified staff in necessary areas for smooth project implementation, and a director was appointed to supervise the staff's day-to-day activities.
Schedule 5, Para. 3	The Borrower shall cause (i) the Head of the Road Fund's Technical Construction Division to ensure that the PIU receives any assistance it reasonably requires for successful implementation of the Road Development Component; (ii) the Head of the Road Fund's Program and Road Construction Development Division (PRCDD) to ensure that the PIU receives any assistance it reasonably requires for the development and implementation of the Road Sector Planning and Management System Subcomponent; and (iii) the managing director of the REPC to ensure that the PIU receives any assistance it reasonably requires for the development and implementation of the Provision of Road Equipment Subcomponent.	**Complied with.** (i) The PIU was provided with technical support from the Road Fund to implement the road development component. (ii) The PRCDD representative was engaged to assist in preparing bidding documents for civil works and bid evaluations. (iii) The director of the REPC reported to the PIU regularly.
Incentive Payments		
Schedule 5, Para. 4	The Borrower may consider using a portion from the amount allocated to Category 4 (as defined in Schedule 3 to the Loan Agreement) for incentive payments but shall ensure that that portion does not exceed the equivalent of thirty thousand Dollars ($30,000). The Borrower shall ensure that the incentive payments are (i) awarded only to staff of the Road Fund directly involved in implementation of the Project, (ii) determined in accordance with performance-based standards and methods agreed with ADB, and (iii) fully accounted for in the Project accounts.	**Complied with.** The government's decree was approved on 17 June 2008 to implement incentive payments. (i) The incentive system was in place during implementation. (ii) The decree stated that the system was executed, based on the PIU's review of each expert's performance. (iii) The payment was accounted for in the annual audit reports.

Para No.	Description	Remarks/Issues
Project Monitoring and Reports		
Article IV, Section 4.07	The Borrower shall ensure that the Project facilities are operated, maintained and repaired in accordance with sound administrative, financial, engineering, environmental, and maintenance and operational practices.	**Partly complied with.** Section 1 was taken over to Uzavtoyul in September 2014, after which Uzavtoyul has provided regular maintenance works. Section 2 is expected to be taken over by September 2015, after the defect liability period ends.
Schedule 5, Para. 5	Within six months from the Effective Date, the Borrower, through the Road Fund, shall finalize and adopt a comprehensive project performance monitoring system (PPMS) acceptable to ADB, based upon the PPMS indicators agreed upon between the Borrower and ADB. The Borrower, through the Road Fund, shall collect base line data for performance monitoring.	**Complied with.** The PPMS was established and baseline data collected. Results of regular monitoring were documented and submitted to ADB.
Schedule 5, Para. 6	The Borrower, through the Road Fund, shall submit to ADB quarterly progress reports in form and substance satisfactory to ADB. The quarterly reports shall include, without limitation, a description of (i) the progress in implementation of each component and subcomponent of the Project during the relevant quarter; (ii) difficulties and delays encountered in implementation of the Project, and remedial actions suggested; (iii) the overall progress of the Project as monitored against the PPMS indicators, and (iv) activities for the next quarter. Unless specific issues have arisen earlier, the progress reports will report on the items set forth in paragraph 16.(b) of Schedule 5 of the Loan Agreement semi-annually. The Borrower shall submit a project completion report within three months of completion of the Project.	**Complied with.** During implementation, quarterly progress reports were submitted timely to ADB. The completion report was submitted in February 2014.
Counterpart Funds		
Schedule 5, Para. 7	The Borrower, through the Road Fund and/or the REPC (as applicable), shall make available all counterpart funds required for timely and effective implementation of the Project, and shall ensure that the resources thus required are made available on an annual basis for each fiscal year. The Borrower shall cause the Road Fund to incorporate updated estimates of the funding requirements for implementation of the Project in its annual development program.	**Complied with.** The government allocated sufficient funds to the project from the national budget to ensure smooth implementation, and the budget was used by the Road Fund.
Funding for Reconstruction, Repair and Routine Maintenance		
Schedule 5, Para. 8	The Borrower, through the Road Fund, (i) shall allocate and make available, on a timely basis, the funds budgeted for the reconstruction and repair of roads in accordance with the Road Development Program; and (ii) shall ensure that the road sections covered by the Road Development Program are maintained in accordance with applicable standards	**Complied with.** During implementation, the Road Fund allocated the necessary resources, including counterpart funds, as needed in a timely manner. Uzavtoyul is responsible for maintaining the roads, after

Para No.	Description	Remarks/Issues
	and best international practices.	the handover of the project roads.
Schedule 5, Para. 9	The Borrower, through the Road Fund, (i) shall allocate and make available, on a timely basis, the funds budgeted for routine maintenance of roads in accordance with the Road Development Program; and (ii) shall ensure that, in each fiscal year after 2010, the budget for routine maintenance is increased by no less than annual inflation rates, provided always that sound fiscal balance is maintained.	**Complied with.** The road maintenance allocation was SUM71.3 billion in 2011, SUM300 billion in 2012, SUM661 billion in 2013, and SUM672 billion in 2014.
Road Sector Reform		
Schedule 5, Para. 10	The Borrower shall keep ADB informed about the progress in implementing the road sector reforms included in the Road Development Program so that the objectives and outputs of the Project and the Road Development Program remain fully aligned.	**Complied with.** Updates to the program were included in the quarterly progress reports.
Road Safety		
Schedule 5, Para. 11	The Borrower, through the Road Fund, will ensure that Works contracts will include an obligation on the part of contractors to comply with road safety measures.	**Complied with.** Clauses related to road safety measures were included in the bidding documents for civil works, and in the contracts.
Schedule 5, Para. 12	The Borrower shall cause the accident rate and traffic volume on the road sections rehabilitated under the Road Development Component to be monitored and reported on under the PPMS until 2018.	**Complied with.** The PPMS reports were submitted as part of the PPMS for the ongoing investment program. The PPMS reports include various socioeconomic indicators, including accident data and traffic volumes, using data recorded in the districts located along the project roads.
No Land Acquisition and Resettlement		
Schedule 5, Para. 13	The Borrower shall ensure that the Project involved neither land acquisition nor involuntary resettlement within the meaning of ADB's *Involuntary Resettlement Policy* (1995).	**Complied with.** No land acquisition or resettlement was envisaged at appraisal. However, after review of the design of the km 490–581 section, two cases were confirmed eligible as affected, and those households were compensated. The entire payment was completed in August 2010, and the implementation report was prepared and submitted to ADB.
Change in Ownership		
Schedule 5, Para. 14	Implementation of plans for (a) any change in the ownership of the Project facilities or the REPC, and/or (b) any material change in the organizational structure of the Road Fund or the REPC that may affect the Borrower's ability to perform its obligations under this Loan Agreement or the REPC's ability to	**Complied with.** There is no change in the ownership of the project facilities and the REPC.

Para No.	Description	Remarks/Issues
	perform its obligations under the Subsidiary Loan Agreement, shall require ADB's prior approval. In the event that any such change is approved by ADB, the Borrower shall ensure that the change is carried out in a lawful and transparent manner. Depending on the nature of the approved change, ADB shall have the right to require changes to the terms of this Loan Agreement and/or the Subsidiary Loan Agreement.	
Construction Quality		
Schedule 5, Para. 15	The Borrower, through the Road Fund, shall ensure that the Road Development Component is carried out in accordance with the applicable technical specifications and design, and that the construction supervision, quality control and management of the Project are performed in accordance with applicable standards and best international practices.	**Complied with.** The project management and construction supervision consultant was recruited and mobilized. The consultant submitted regular monthly progress reports results of construction quality monitoring.
Environment		
Schedule 5, Para. 16	The Borrower, through the Road Fund, shall ensure that potential adverse environmental impacts arising from the Project are minimized by implementing all the mitigation measures presented in the IEE and SIEE. The Borrower shall also ensure that the design, construction, and operation of the Project Facilities are in accordance with ADB's Environment Policy (2002) and the Borrower's environmental laws and regulations. The Borrower, through the Road Fund, shall ensure that: (a) the PIU has access to sufficient resources to implement and record the implementation of the EMP with guidance from the Borrower's State Committee for Environmental Protection or any legal successor thereto; (b) the PIU semi-annually reviews the progress made on environmental measures detailed in the EMP, IEE, and SIEE; environmental monitoring; and problems encountered and remedial measures taken; and that its findings are included in the next quarterly progress report to be submitted to ADB; (c) detailed engineering designs, Works contracts and other contracts for the Project facilities incorporate applicable environmental measures identified in the EMP, IEE, and SIEE; and (d) Works contractors are supervised to ensure compliance with the requirements of the EMP, IEE, and SIEE.	**Complied with.** All civil works were implemented in accordance with the requirements of ADB's Environment Policy (2002) and the government's relevant environmental laws and regulations. (a) Complied with. The district-level Nature Protection Committee monitored implementation of government requirements. (b) Partly complied with. RF did not submit the environmental monitoring report during implementation. However, after project closing, RF submitted comprehensive environmental monitoring reports for the km 490–581 section in October 2013 and for the km 876–916 section in June 2014. The reports were disclosed on the ADB website. (c) Complied with. The contract document covered all required environmental mitigation measures, and the contractors implemented those measures as required in the contracts. (d) Complied with.
Labor, Gender, Health, and Social Protection		
Schedule 5, Para. 17	The Borrower, through the Road Fund, will include a specific provision in bidding documents to ensure that Works contractors (a) comply with applicable	**Complied with.** Provisions (a)–(g) were all included in the bidding

Para No.	Description	Remarks/Issues
	core labor standards, labor laws and incorporate applicable workplace occupational safety norms; (b) do not differentiate payment between men and women for work of equal value; (c) do not employ child labor in the construction and maintenance activities; (d) eliminate forced or compulsory labor; (e) eliminate discrimination in respect of employment; (f) allow for freedom of association; and (g) to the extent possible, maximize employment of local poor and disadvantaged persons for construction purposes, provided that the requirements for efficiency are adequately met.	documents of civil works, and in the contracts.
Schedule 5, Para. 18	The Borrower, through the Road Fund, shall ensure that Works contractors disseminate, or engage appropriate service providers to –disseminate, information on the risks of sexually transmittable diseases, including HIV/AIDS, to the employees of Works contractors engaged under the Project and to members of the local communities surrounding the road sections that will be rehabilitated under the Project, particularly to females.	**Complied with.** The provisions were included in the bidding documents of civil works, and in the contracts. During civil works, awareness campaigns were carried out by the contractors in consultation with the PMCS consultant, and relevant information was disseminated to educate their workers.
Establishment and operation		
Article IV Section 4.04, (a)	The Borrower shall ensure that the activities of its departments, agencies, and the REPC with respect to the carrying out of the Project and operation of the Project facilities are conducted and coordinated in accordance with sound administrative policies and procedures.	**Complied with.**
Article IV Section 4.04, (b)	The Borrower shall take all action which shall be necessary on its part to enable the REPC to perform its obligations under the Subsidiary Loan Agreement, and shall not take or permit any action which would interfere with the performance of such obligations.	**Complied with.**
Schedule 5, Para. 19	Establishment and operation of REPC: (a) No later than 30 June 2008, the Borrower shall establish the REPC as a state-owned corporate entity in a legal form to be determined under Subcomponent 2 (ii)(b). (b) The Borrower shall ensure (i) that the REPC has the capacity to own, operate, manage and rent out equipment for road construction, rehabilitation and/or maintenance works in Uzbekistan, (ii) that the REPC has equity in an amount that will be sufficient to maintain a ratio of debt to equity no greater than 90 to 10 upon the incurrence of debt in the amount of fifty-five million three hundred ten thousand Dollars ($55,310,000), (iii) that this equity takes the form of assets acceptable to ADB appraised in accordance with methods acceptable to ADB, and, without limiting the generality of the foregoing, (iv) that the REPC is sufficiently equipped with office space, facilities and motivated personnel with sufficient	**Complied with.** The REPC (“Transyo’Iqurilish”) was established in March 2008 and registered by the government and its bank account was opened. (b)-(i) Complied with. At completion, 283 units of road construction equipment or machinery were procured. (b)-(ii) Complied with. The ratio of debt–equity was 82:18 in 2012 and 77:23 in 2013, which satisfies the threshold of “no greater than 90:10”. (b)-(iii) Complied with. (b)-(iv) Complied with. The REPC was sufficiently equipped

Para No.	Description	Remarks/Issues
	expertise and experience in areas relevant to the REPC's proposed business operations (including, without limitation, business management, road equipment operation and maintenance, financial management and accounting, and marketing). (c) For purposes of this Section, the term "debt" means any indebtedness of the REPC maturing by its terms more than one year after the date on which it is originally incurred.	with office space, facilities and administration staff in Tashkent, and five regional centers were established across the country.
Schedule 5, Para. 20	The Borrower shall ensure that the REPC conducts its operations in a transparent manner by offering its services upon terms and conditions that it makes publicly available and that are the same for all its potential customers, whether state-owned or privately owned and whether foreign or national.	**Complied with.** The REPC provides its service to state-owned or private road construction companies on a contractual basis. The demands for its service have been growing, and the number of customers has increased.
Fee Level		
Schedule 5, Para. 21	The Borrower shall ensure that the REPC sets its equipment hire and service charges at a level that is sufficient for its financial viability in accordance with the business and financial models developed under the Project.	**Complied with.** The service charges were set up in 2008, and are reviewed and amended regularly in accordance with the business plan.
Operating Ratio		
Schedule 5, Para. 22	(a) Except as ADB shall otherwise agree, the Borrower shall ensure that the REPC maintains, for each of its fiscal years after its fiscal year ending on 31 December 2009, a ratio of total operating expenses to total operating revenue not higher than 80% (eighty percent). (b) The Borrower shall ensure that, in the third quarterly progress report in each of its fiscal years, the REPC reports to the Road Fund, on the basis of a forecast prepared by the REPC, whether the REPC would meet the requirements set forth in paragraph (a) in respect of such year and the next following fiscal year. If any such review shows that the REPC would not meet the requirements for the fiscal years covered by such review, the Borrower shall ensure that the REPC promptly takes all necessary measures (including without limitation, adjustments of the structure or levels of its prices) in order to meet such requirements. (c) For the purposes of this Section: (i) the term "total operating expenses" means all expenses related to operations, including administration, adequate maintenance, taxes and payments in lieu of taxes, and provision for depreciation, but excluding interest and other charges on debt; and (ii) the term "total operating revenues" means revenues from all sources related to operations, after	**Partly complied with.** (a) Partly complied with. The ratio was 83.7% in 2012 and 78.1% in 2013, and the average in 2010–2013 was 82.2%, slightly above the stipulated thresholds. This is expected to improve, considering the increasing demand for REPC's services. (b) Complied with. The REPC's annual financial statements were submitted.

Para No.	Description	Remarks/Issues
	making adequate provisions for uncollectible debts.	
Debt-Equity Ratio		
Schedule 5, Para. 23	(a) Except as ADB shall otherwise agree, the Borrower shall ensure that as of 31 December 2009, the REPC shall have a ratio of debt to equity that is no greater than 80 to 20. (b) For purposes of this Section, the term "debt" means any indebtedness of the REPC maturing by its terms more than one year after the date on which it is originally incurred.	**Partly complied with.** The average ratio during 2009–2013 was 80.7:19.3, while the ratio in 2013 was 77.3:22.7. As the demand for the REPC's services has grown continuously, further improvement in the ratio is expected.
Anticorruption		
Schedule 5, Para. 24	Anti-corruption: The Borrower shall comply with, and shall ensure that the Road Fund and the REPC comply with, ADB's Anticorruption Policy (1998, as amended to date). The Borrower, consistent with its commitment to good governance, accountability and transparency, agrees (a) that ADB has the right to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive or coercive practices relating to the Project and (b) to cooperate fully with any such investigation and to extend all necessary assistance, including providing access to all relevant books and records, as may be necessary for the satisfactory completion of any such investigation. In addition, the Borrower shall (a) conduct periodic inspections on the contractors' activities related to fund withdrawals and settlements; (b) ensure that all contracts financed by ADB in connection with the Project include provisions specifying the right of ADB to audit and examine the records and accounts of all contractors, suppliers, consultants, and other service providers as they relate to the Project; and (c) the construction supervision consultant shall verify the contractors' invoices in accordance with working drawings and contract specifications. The Road Fund shall announce the Project and business opportunities associated with the Project on its website, which is currently part of the website of the Ministry of Finance of the Borrower.	**Complied with.**
Midterm review		
Schedule 5, Para. 25	Two years from the Effective Date, the Borrower, the Road Fund, the REPC and ADB shall jointly undertake a comprehensive mid-term review of the Project. The midterm review shall assess the Project's achievements and progress in implementing the Project against the PPMS indicators and the project implementation schedule in order to identify any difficulties or constraints encountered in implementing the Project and to make adjustments, if necessary, for the remaining project implementation period. In particular, the mid-term review shall, among others, evaluate the	**Complied with.** The midterm review was undertaken on 27 October–4 November 2010, and produced a comprehensive memorandum of understanding.

Para No.	Description	Remarks/Issues
	Project scope, costs, overall implementation progress, and status of compliance with loan covenants.	
Project audit		
Article IV Section 4.05 (a)	The Borrower shall (i) maintain, or cause to be maintained, separate accounts for the REPC and for the Project as a whole; (ii) have such accounts and related financial statements audited annually, in accordance with appropriate auditing standards consistently applied, by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB; (iii) furnish to ADB, as soon as available but in any event not later than 6 months after the end of each related fiscal year, certified copies of such audited accounts and financial statements and the report of the auditors relating thereto (including the auditors' opinion on the use of the Loan proceeds and compliance with the financial covenants of this Loan Agreement as well as on the use of the procedures for the imprest account and the statement of expenditures), all in the English language; and (iv) furnish to ADB such other information concerning such accounts and financial statements and the audit thereof as ADB shall from time to time reasonably request.	**Complied with.** The borrower submitted the project audit reports and REPC audit reports as required, while some were delayed.
Article IV Section 4.05 (b)	The Borrower shall enable ADB, upon ADB's request, to discuss the financial statements for the Project and the REPC, and the financial affairs related to the Project and the REPC, from time to time with the auditors appointed by the Borrower pursuant to Section 4.05(a) here above, and shall authorize and require any representative of such auditors to participate in any such discussions requested by ADB, provided that any such discussion shall be conducted only in the presence of an authorized officer of the Borrower unless the Borrower shall otherwise agree.	**Complied with.**
Schedule 5, Para. 26	The Borrower shall ensure that the annual performance audit for the Project referred to in Section 4.05 of this Loan Agreement is conducted by independent auditors recruited in accordance with the Consulting Guidelines. All costs incurred in connection with such performance audits shall be Recurrent costs under Category 4 (as defined in Schedule 3 to this Loan Agreement).	**Complied with.** The auditors were recruited in accordance with the ADB's relevant guidelines, and with ADB concurrence. Funding for the auditors was drawn from recurrent costs. The project audit reports were submitted to ADB as required.

ADB = Asian Development Bank, FY = financial year, HIV/AIDS = human immunodeficiency virus infection/acquired immunodeficiency syndrome, km = kilometer, PIU = project implementation unit, PMCS = project management and construction supervision, PPMS = project performance monitoring system. PRCDD = Program and Road Construction Development Division, REPC = road equipment pool company, RF = Road Fund, SUM = Uzbek Sum.

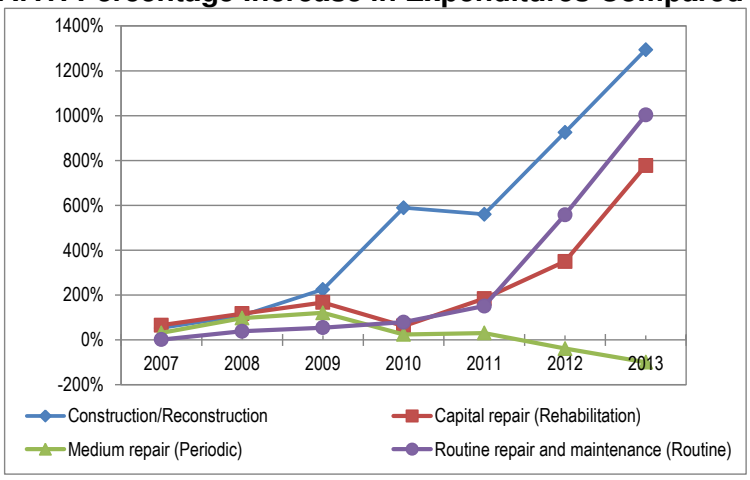
ROAD SECTOR EXPENDITURE

Table A7: Road Sector Annual Expenditure (2006–2013)

	2006	2007	2008	2009	2010	2011	2012	2013
Expenditure (SUM billion)	328.9	295.2	430.6	473.8	668.0	709.8	1,249.70	1,918.6
% annual increase in RF Revenue		(10.2)	45.9	10.0	41.0	6.3	76.06	53.5
Expenditure for routine and periodic repair and maintenance (SUM billion)	71.3	82.2	117.7	131.7	110.0	140.0	275.90	429.2
Share of routine/periodic repair and maintenance in RF Revenue (%)	21.7	27.8	27.3	27.8	16.5	19.7	22.10	22.4

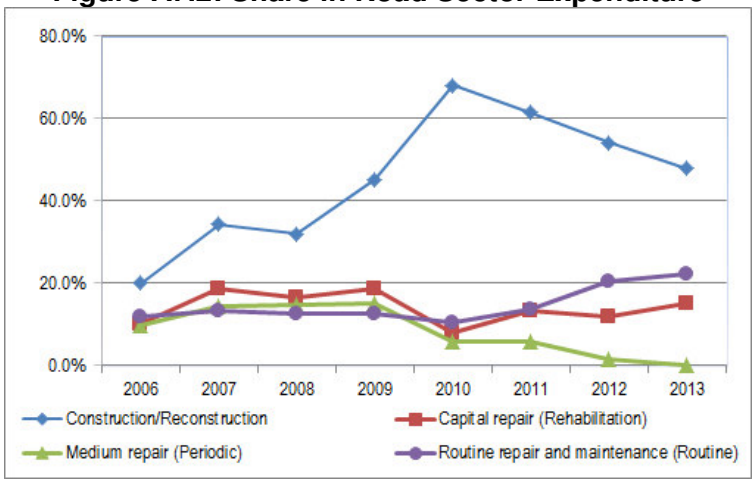
RF = Road Fund, SUM = Uzbek Sum.
Note: RF Revenue numbers do not include carry forward balance.
Source: Road Fund, Uzbekistan Ministry of Finance.

Figure A7.1: Percentage Increase in Expenditures Compared to 2006



Source: Road Fund, Uzbekistan Ministry of Finance.

Figure A7.2: Share in Road Sector Expenditure



Source: Road Fund, Uzbekistan Ministry of Finance.

ROAD SECTOR PLANNING AND MANAGEMENT SYSTEM SUBCOMPONENT

A. Introduction

1. This subcomponent was designed as a part of the Road Sector Sustainability Component to strengthen road sector capacity and operational sustainability in Uzbekistan. At appraisal, the subcomponent was designed to strengthen capacity in sector planning, management and financing systems, which was also considered in line with the Road Sector Development Program for 2007–2010.[1]

2. The planning and financing of roads in Uzbekistan is managed by the Road Fund (RF), which was established in the Ministry of Finance and became operational in March 2006 as a quasi-autonomous authority. Uzavtoyul is responsible for road construction and maintenance.

B. Scope

3. The subcomponent was expected to achieve the following: (i) a diagnostic study of the existing road sector planning and financing system and institutional frameworks; (ii) analysis of the potential to implement road user charges, road tolling systems and road asset management systems; (iii) pilot assessments of the condition of selected roads, particularly in terms of roughness and pavement condition; (iv) introduction of a computerized road sector planning management system based on the Highway Development and Management Model (HDM)-4; (v) development of transport planning tools; (vi) development of database systems; (vii) training and study tours for RF staff and relevant institutes to familiarize them with the new road asset management tools to be introduced under the subcomponent; (viii) preparation of a long-term program to implement the databases proposed under (vi) nationwide; and (ix) the proposal of institutional frameworks to enhance sector operational efficiency and sustainability.

4. To implement the subcomponent, an international consulting firm was selected using quality- and cost-based selection. The consultant was engaged in May 2009 and completed all the tasks listed above, and submitted its final report to RF in June 2010.

C. Outputs Achieved

5. **Planning, financing system and institutional framework studies.** The studies found that RF was fully reliant on the state budget for revenue, because revenues from users (mainly taxes, transit fees and vehicle registration fees) were collected by the other government authorities. Costs for road construction, rehabilitation and maintenance works were carried out by Uzavtoyul, as those works were its responsibility, but it was noted that most of Uzavtoyul's revenue came from RF. The studies included recommendations proposing (i) the use of public–private partnership modalities to develop road networks to increase the sustainability and soundness of RF's financial condition, beginning with road user changes; and (ii) competitions among private construction companies in Uzbekistan involved in road maintenance.

6. To support the proposal, financial models and a draft guideline for introducing public–private partnerships in road sector operations were produced. To develop the guidelines, the consultant reviewed existing legislative frameworks and laws to identify limitations and options to overcome them. They also assessed the need to establish new road agencies to enhance sector operational efficiency and optimize available resources. The assessment concluded that a road authority would be needed, which was expected to be responsible for operating roads, making comprehensive maintenance plans, managing existing physical assets and allocating

strategically available financial resources. The best candidate was seen to be Uzavtoyul, with RF taking a larger role at the policy level. During implementation, an institutional development strategy was drafted and discussed among RF, Uzavtoyul and the other relevant agencies.[1]

7. **Assessment of potential toll systems.** The potential to implement toll systems along national highways was analyzed, with a view to increasing revenue sources, maintaining the sector in a financially healthy condition, and ensuring sector operations were sustainable. The proposals were seen as benefitting the government, but a number of issues were identified that should be addressed prior to implementation of such a system, including: (i) determining the responsible authorities to operate and manage toll systems and regulate and monitoring system operations; (ii) assessing the feasibility of implementing toll systems, including a long-term cost–benefit analysis; (iii) reviewing legislative frameworks and regulations; (iv) examining appropriate toll amounts for users and operators; and (v) determining how long the tolls would be in effect. The report concluded that these requirements needed to be discussed to ensure legal issues (including possible amendments to existing laws) were addressed, and recommended that international financial institutions be involved in development of the system through the provision of both technical assistance and financial support. The government is reviewing the report.

8. **Pilot road condition data collection.** RF and the consultant selected 4,011 kilometers of major national highways and city roads within Tashkent city and conducted a pilot comprehensive survey during 2009–2010. Surveys included traffic counts, the origin and destination of users, visual conditions, road surface roughness, deflection testing and axle loads. During this exercise, the consultant provided training to RF staff and relevant authorities on conducting surveys and analyzing data, and prepared manuals.

9. **Introduction of Highway Development and Management (HDM-4) software and assessment of its usability as a road planning and management tool in Uzbekistan.** HDM-4 software was purchased under the subcomponent, and RF staff was trained to use it for computerizing their road asset management system, which was not being conducted in an organized way. The staff learned to calibrate and store collected data in the implemented HDM-4 system and analyze the data to determine appropriate maintenance methods and timing for each road. With this new software, a pilot road asset management system was developed to gather and organize the information required for HDM-4 analysis. A user manual was produced in English and Russian to guide users in manipulating, compiling and interpreting data.[2]

10. A long-term nationwide program for database implementation was also developed, comprising (i) initial data collection to inventory roads and assess condition, geometry, roughness, pavement strength, and traffic load; (ii) annual surveys of the road network; (iii) a pavement management system; (iv) a routine maintenance management system.[3]

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[1] The strategy made recommendations for strengthening the role of the RF in road sector administration; introducing road asset management and performance auditing systems; creating an Uzbekistan road authority; adopting and operating a road asset management plan and system; creating a transport resource group; and establishing a committee for transport (or a transport secretary) in the Cabinet of Ministers.

[2] The second aspect of the user manual was of particular importance. The technical system used in the HDM-4 and its linked database largely follow the standards of the American Association of State Highway and Transportation Officials, which are not well known in Uzbekistan. The manual was important in adjusting the manipulation and transformation of data.

[3] While the pavement management system focuses on larger and more costly works (pavement repair and road network development), and conducts an economic evaluation of expenditures, the routine maintenance management system addresses the daily routine maintenance issues in a more practical “contracting” approach.

11. **Overseas training of Road Fund staff.** A 2-week study tour to France and Germany was held in June 2010 for RF staff to learn about road asset management systems, including hardware and information technology, in France and Germany, and examine their applicability to Uzbekistan. To familiarize staff with the HDM-4 software, two training sessions were held in December 2009 and May 2010. During the training, staff participated in demonstrations with sample data, which enabled them to use HDM-4 more effectively.

12. **Proposal of an institutional framework and a long-term implementation plan.** An institutional development strategy and a maintenance strategy and funding plan were proposed to optimize RF resources and ensure the sustainable operation (from an institutional, financial and technical perspective) of national road networks. During preparation, the consultant analyzed the sector's existing operational systems, simulated various models and identified optimal and practical solutions. The proposed solutions included (i) institutional restructuring by redistributing operational responsibility and roles among relevant authorities, (ii) establishment of a new coordination body (the "Road Agency"), and (iii) approaches to increase opportunities for local construction firms in road maintenance works. These solutions are being reviewed by the government.

D. Future Actions

13. The subcomponent produced various recommendations, as stated above, and most were considered realistic and implementable. The consultant also helped the government implement the HDM-4 system for computerized road asset management, and provided RF staff with technical training. At present, however, the government continues to require assistance from international financial institutions to mainstream recommended approaches to nationwide road sector operation. It is suggested that the government make an ongoing effort to include the recommendations in future sector policies and strategies; a staff capacity enhancement program could be included in future projects, as ongoing Asian Development Bank projects have included capacity building along with road development components.

LIST OF EQUIPMENT PROCURED AND THEIR PRESENT STATUS

Table A9.1: List of Equipment Procured

Package	Equipment	Amount ($ Million)	Status
GP-1: Road construction equipment			
Lot 1	Earthmoving Equipment: (i) 8 Bulldozers, D39EX-22, 150 hp, (Country of Origin: Japan) (ii) 4 Bulldozers, D65E-12, 180 hp, (Country of Origin: Japan) (iii) 4 Bulldozers, D155A-5, 302 hp, (Country of Origin: Japan) (iv) 16 Motor graders,GD611A-1,13 t, (Country of Origin: Japan) (v) 8 Motor graders,GD705A-4, 20 t, (Country of Origin: Japan) (vi) 8 Excavators, PC300-7, 1.6 m^3, (Country of Origin: Japan); (vii) 10 Loaders, WA470-3, 4 m^3, (Country of Origin: China)	14.57	Total equipment: 58 units Contract award: 2 April 2009 Supplier: Itochu Corporation (Japan) All equipment supply completed by September 2010.
Lot 2	Wheeled Equipment: (i) 154 Dump trucks, HD270, 15 t (Country of Origin: Korea) (ii) 2 Trailers, HD1000, 60 t (Country of Origin: Korea) (iii) 6 Fuel stations, HD170, 12000 liters (Country of Origin: Korea) (iv) 4 Bitumen tankers, HD1000, 25 t (Country of Origin: Korea) (v) 4 Mobile shops, HD260 (Country of Origin: Korea)	16.05	Total equipment: 170 units Contract award: 18 March 2009 Supplier: Road International (Korea) All equipment supply completed by September 2010.
Lot 3	Asphalt Mixing Plant: 4 Asphalt mixing plants (Country of Origin: China and Japan)	6.86	Total equipment: 4 units Contract award: 16 January 2009 Supplier: Itochu Corporation (Japan) All equipment supply completed by September 2010.
Lot 4	Rock-crushing & Screening Plant: 4 Rock-crushing & Screening Plants (Country of Origin: China and Japan)	3.89	Total equipment: 4 units Contract award: 16 January 2009 Supplier: Itochu Corporation (Japan) All equipment supply completed by September 2010.
Lot 5	Cold milling equipment: (i) 4 Cold-milling equipment units (operating width 2.0m) (Country of Origin: Germany) (ii) 4 Cold-milling equipment units (operating width 0.5m) (Country of Origin: Germany)	3.23	Total equipment: 8 units Contract award: 2 February 2009 Supplier: Itochu Corporation (Japan) All equipment supply completed by September 2010.
Lot 6	Pavers and Rollers: (i) 4 Asphalt pavers: crawler type width 7.5 m (2 units), and wheeled type width 7.5 m (2 units) (Country of Origin: Germany) (ii) 5 Combined tandem rollers (Country of Origin: Germany) (iii) 4 Vibrating tandem rollers (Country of Origin: Germany)	2.45	Total equipment: 13 units Contract award: 16 January 2009 Supplier: Itochu Corporation (Japan) All equipment supply completed by September 2010.

Package	Equipment	Amount ($ Million)	Status
GP-2: Bridge Construction Equipment			
Lot 1	Boring Equipment	Cancelled	This component was cancelled and transferred to the CAREC Corridor 2 Road Investment Program. The equipment was supplied under the investment program.
Lot 2	Concrete Equipment and Vibrators: (i) 1 Concrete mixing station with production capacity of 100 m^3/h (Country of Origin: Germany) (ii) 1 Concrete paver, working width of 7.5 m (Country of Origin: Germany) (iii) 10 immersion and platform vibrators, diameter 36 mm–130 mm,(Country of Origin: Japan)	2.84	Total equipment: 12 units Contract award: 3 February 2009 Supplier: Itochu Corporation (Japan) All equipment supply completed by September 2010.
Lot 3	Truck Cranes: (i) 4 Truck Cranes, 50 t (Country of Origin: China) (ii) 4 Truck Cranes, 25 t (Country of Origin: China) (iii) 6 Truck Cranes, 16 t (Country of Origin: China)	2.44	Total equipment: 14 units Contract award: 17 February 2009 Supplier: Mann Ferrostaal (Germany) All equipment supply completed by September 2010.

GP = goods package, h = hour, hp = horse power, m = meter, m^3 = cubic meter, mm = millimeter, t = ton.
Source: Road Fund, Uzbekistan Ministry of Finance; Transyo'lqurilish.

Table A9.2: Technical Specification and the Current Status of the Equipment Procured

№	Equipment		Model	Technical characteristic	Quantity (pcs)	Location					Operational condition
						Nukus	Kungrad	Guzar	Mirzaabad	Angren	
PACKAGE 1: ROAD-CONSTRUCTION EQUIPMENT											
	Lot 1: Earthmoving equipment										
1	1	Bulldozer	D39EX-22	150 hp	8	3	1	2	1	1	Exploitable
2	2	Bulldozer	D65E-12	180 hp	4	1	1	1		1	Exploitable
3	3	Bulldozer	D155A-5	302 hp	4	1	1	1	1		Exploitable
4	4	Motor grader	GD611A-1	13 t	16	4	4[a]	4	4		Exploitable
5	5	Motor grader	GD705A-4	20 t	8	2	2	2	2		Exploitable
6	6	Excavator	PC300-7	1.6 m^3	8	3	1	1	1	2	Exploitable
7	7	Loader	WA470-3	4.2 m^3	10	3	1	1	2	3	Exploitable
	Lot 2: Wheeled equipment										
8	1	Dump truck	HD270	15 t	154	34	27	30	30	33	Exploitable
9	2	Trailer	HD1000	60 t	2	1				1	Exploitable
10	3	Fuel station	HD170	12000 l	6	1	1	1	1	2	Exploitable
11	4	Bitumen tanker	HD1000	25 t	4	1	1	1	1		Exploitable
12	5	Mobile shop	HD260		4		1	1	1	1	Exploitable
	Lot 3: Asphalt mixing plant										
13	1	Asphalt mixing plant	CSD2500/5-LINTEC	160 t/h	4	1	1	1	1		Exploitable
	Lot 4: Crushing and screening plant										
14	1	Crushing and screening plant	PGJ-6 & PSG-1300H	100 m^3/h	4	2		1		1	Exploitable
	Lot 5: Cold milling equipment										
15	1	Cold milling equipment	W1900	2 m	4	1	1	1	1		Exploitable
16	2	Cold milling equipment	W50DC	0.5 m	4	1	1	1	1		Exploitable
	Lot 6: Pavers and rollers										

№		Equipment	Model	Technical characteristic	Quantity (pcs)	Location					Operational condition
						Nukus	Kungrad	Guzar	Mirzaabad	Angren	
17	1	Asphalt paver (crawler & wheeled types)	SUPER 1800-2, 1803-2	7.5 m	4	1	1	1	1		Exploitable
18	2	Combined roller	HD90K	8.6 t	5	1	2	1	1		Exploitable
19	3	Vibrating roller	HD90	9.2 t	4	1	1	1	1		Exploitable
PACKAGE 2: BRIDGE-CONSTRUCTION EQUIPMENT											
	Lot 2: Concrete equipment										
20	1	Concrete mixing plant	EBC-D105	100 m^3/h	1				1		Exploitable
21	2	Concrete paver	SP850	7.5 m	1				1		Exploitable
22	3	Depth and platform vibrators	FX-60B & FU-161	36 mm–130 mm	10	5				5	Exploitable
	Lot 3: Cranes										
23	1	Crane	QY16D	16 t	6	1	1	1	1	2	Exploitable
24	2	Crane	QY25K	25 t	4	2				2	Exploitable
25	3	Crane	QY50B	50 t	4	2				2	Exploitable
TOTAL					**283**	**72**	**49**	**53**	**53**	**56**	

h = hour, hp = horse power, m = meter, m^3 = cubic meter, mm = millimeter, t = ton.

[a] Two Motor graders have been relocated from Kungrad to the Shahrikhan branch of Transyo'Iqurilish.

Source: Road Fund, Uzbekistan Ministry of Finance; Transyo'Iqurilish.

PROJECT CONTRACT PACKAGES

Package	Procurement Mode	Contract Signing Date	Original Contract ($ equivalent)[a]	Actual Cost at Completion ($ equivalent)[a]	Actual ADB Financing ($)
A. Road Development Component					
1. Civil Works					
a. Km 876–916	ICB	22 Sep 2009	13,811,029.31	10,410,292.50	1,835,068.22
b. Km 490–520	ICB	13 May 2010	41,272,000.02	35,932,668.28	721,895.49
c Km 520–553	ICB	13 May 2010	43,876,999.99	38,473,622.49	782,370.00
d Km 553–583	ICB	13 May 2010	47,000,000.03	38,692,155.63	734,821.53
2. Project management and construction supervision consultant	QCBS	13 May 2009	1,682,680.00	2,746,897.56	1,531,952.56
3. Individual procurement specialist – 1st	Direct contracting	15 Apr 2008	60,000.00	55,408.56	55,408.56
4. Individual procurement specialist – 2nd	Single Source Selection	28 Oct 2008	119,000.00	168,911.00	168,911.00
B. Road Operations and Maintenance Component					
1. Road sector planning and management	QCBS	13 May 2009	1,353,543.37	1,059,780.72	1,059,780.72
2. Development of a road equipment pool company	QCBS	24 Oct 2008	20,830.00	185,960.96	185,960.96
3. Procurement of road equipment					
a. Goods Package 1					
(i) Lot 1	ICB	2 Apr 2009	14,362,357.55	14,573,727.55	14,573,727.55
(ii) Lot 2	ICB	18 Mar 2009	17,709,828.12	16,053,883.83	16,053,883.83
(iii) Lot 3	ICB	16 Jan 2009	6,447,550.64	6,857,281.59	6,857,281.59
(iv) Lot 4	ICB	16 Jan 2009	3,823,532.41	3,893,439.00	3,893,439.00
(v) Lot 5	ICB	02 Feb 2009	2,990,294.13	3,234,647.39	3,234,647.39
(vi) Lot 6	ICB	16 Jan 2009	2,356,777.87	2,447,403.80	2,447,403.80
b. Goods Package 2[b]					
(i) Lot 2	ICB	3 Feb 2009	2,649,679.85	2,840,195.25	2,840,195.25
(ii) Lot 3	ICB	3 Feb 2009	2,589,502.00	2,445,792.00	2,445,792.00
Total			**202,125,605.29**	**180,072,068.11**	**59,422,539.45**

ADB = Asian Development Bank, ICB = international competitive bidding, km = kilometer, MOT = Ministry of Transport, QCBS = quality- and cost-based selection.

[a] Contract amounts shown include taxes and duties and actual costs incurred after loan closing (30 June 2012).

[b] Lot 1 of the package was canceled, after the bidding was held three times.

Source: Asian Development Bank; Road Fund, Uzbekistan Ministry of Finance.

ECONOMIC REEVALUATION

A. Background

1. The project comprised two components: (i) reconstruction of two sections of the A380 road that forms part of Central Asia Regional Economic Cooperation (CAREC) transport corridors 2 and 6; and (ii) strengthening road sector sustainability through improvement of road sector institutions; the introduction of competition in road maintenance, road sector planning and budgeting systems; and the provision of road equipment to ensure a timely and effective road maintenance program.

2. Section 1 of the reconstructed A380 highway, starts at kilometer (km) 876 and ends at km 916 (40 km total length) in the Karakalpakstan Republic; section 2 is from km 490 to km 581 (91 km) in Khorezm Province and the Karakalpakstan Republic.

3. At appraisal, section 2 (km 490–581) was designed as a two-lane road with asphalt concrete pavement. However, a decision was subsequently made to enlarge the road to four lanes with cement concrete pavement.

B. Economic Analysis at Appraisal Stage

4. The following economic benefits were identified and monetized at appraisal: (i) vehicle operating cost (VOC) savings for existing users; (ii) domestic generated traffic benefits (assumed to be equal to 50% of the benefit accruing to the domestic users of the A380 highway); (iii) benefits to road traffic diverting from the northern route (estimated at $700 per truck trip); (iv) benefits to small consignments diverted by shippers from the railway (assumed to be equal to 50% of the benefit accruing to domestic users); and (v) road accident savings.

5. For VOCs, it was estimated at appraisal that in the “without project” scenario the international roughness index (IRI) value would equal 12, while the IRI value for the project road would initially equal 3, rising to 4 before periodic maintenance restores roads to IRI 3.

6. Anticipated domestic-generated traffic was estimated at 20% of existing traffic volume, with benefits per user assumed to be equal to 50% of the benefits of existing users. Road accident savings were estimated by assuming a reduction in accident losses once the A380 highway is improved. Nationwide, annual losses in property damage and forgone production caused by traffic accidents were estimated to be equivalent to 3% of gross domestic product (GDP). The annual traffic accident costs of the project road were estimated based on annual vehicle-km along the project road as a share of total national vehicle-km. A 10% reduction in losses was then assumed to result from improvements to the project road. The original economic appraisal was based on a 3-year construction period (2008–2010), with the project opening in 2011.

C. Economic Reevaluation

7. The Asian Development Bank (ADB) project completion review (PCR) mission conducted an economic reevaluation of the project to ascertain whether the project remained economically viable. The reevaluation compared “with-” and “without-project” scenarios, and calculated incremental changes to costs and benefits.

8. The with-project scenario involved the rehabilitation and upgrading of two sections of the A380 corridor. Section 1 was upgraded to an international standard two-lane road with asphalt cement pavement, while section 2 was upgraded to an international standard four-lane road with cement concrete pavement. The without-project scenario assumed that the road would remain largely unchanged, with the same cross section and an average IRI value of 8 maintained over the project life.

9. The following project benefits were calculated: time savings, accident savings, climate change impacts and savings in vehicle operating costs. Benefits were calculated separately for existing traffic and new traffic generated by the project. The project costs and benefits have been calculated over a 20-year appraisal period, after which a residual value—designed to capture the benefits of the project in the post-appraisal period—is considered. The methodology involved a standard incremental discounted analysis of project cost–benefit streams, and calculated two main economic indicators: (i) the economic internal rate of return (EIRR), and (ii) the project benefit to cost ratio (BCR).

D. Demand Estimation

10. The demand analysis at appraisal was based on estimates of annual average daily traffic (AADT) derived from traffic counts taken in 2007, with demand forecasts based on forecast growth rates ranging from 10.7% to 2%, depending on vehicle type and year.

11. The demand analysis for the economic reevaluation is based on 12-hour traffic counts undertaken in 2013, converted to AADT by application of conversion factors provided by the construction supervision consultants engaged under the ongoing project (Tranche 1 of the CAREC Corridor 2 Investment Program).[1] Traffic was forecast to grow in line with changes in real GDP, with forecasts of real GDP growth for 2014–2019 sourced from the International Monetary Fund.[2] Annual GDP growth beyond 2019 was conservatively assumed to average 4%. Table A11.1 shows that estimated traffic flows on both sections in 2014 were higher than forecast at appraisal.

Table A11.1: Current and Forecast Demand on Project Roads

Year	Location	AADT (at appraisal)	AADT (at reevaluation)
2014	Karakalpakstan (km 876–916)	919	1,518
	Khorezm (km 490–581)	3,978	4,747
2020	Karakalpakstan (km 876–916)	1,381	2,073
	Khorezm (km 490–581)	5,571	6,482
2025	Karakalpakstan (km 876–916)	1,729	2,403
	Khorezm (km 490–581)	6,665	7,514
2030	Karakalpakstan (km 876–916)	2,063	2,786
	Khorezm (km 490–581)	7,729	8,711

AADT = annual average daily traffic, km = kilometer.
Source: Road Fund, Uzbekistan Ministry of Finance, and Asian Development Bank estimates.

[1] 2013 traffic counts were provided by Republican Roads Fund, Uzbekistan Ministry of Finance. The consultant has been supervising civil works along the adjacent sections to Section 2, under Tranche 1, CAREC Corridor 2 Investment Program (Loan 2635-UZB, approved on 21 April 2010).

[2] International Monetary Fund (IMF). World Economic Outlook Database. http://www.imf.org/external/data.htm (accessed 28 April 2014).

E. Economic Costs

12. A comparison of actual investment costs with those forecast at appraisal is in Table A11.2. Owing to the major change in scope of works (para. 6), the civil works component increased substantially from that outlined at appraisal.

13. The total project cost is estimated at $224.90 million. The civil works cost per km was $0.3 million for the km 876–916 section, which was upgraded to an international two-lane standard, and $1.5 million for the km 490–581 section, which was upgraded to four-lane dual carriageway standard.

Table A11.2: Financial Cost
($ million)

Category	At appraisal	At reevaluation
Road Development Component		
Civil Works	61.60	143.47
Procurement Specialist	0.24	0.22
Project Management and Supervision	1.97	2.75
Land Acquisition		0.10
Road Sector Sustainability Component		
Procurement of road equipment	55.10	52.35
Road sector planning and management system	1.35	1.06
Development of road equipment pool company	0.21	1.09
Taxes and Duties	22.20	21.69
Recurrent Costs	0.55	0.45
Contingencies	25.08	0.00
Financing charges during implementation	5.10	1.72
Total Project Costs	**173.40**	**224.90**

Source: Road Fund, Uzbekistan Ministry of Finance, and Asian Development Bank estimates.

14. The economic analysis of the road development component includes the following costs: (i) capital investment (i.e. civil works, procurement specialist, project management and supervision, and land acquisition); and (ii) the difference in operation and maintenance costs between the with- and without-project scenarios. Costs related to taxes, duties, and financing charges during implementation have been excluded. Costs and benefits were converted from financial to economic prices in line with official ADB guidelines.[3] A shadow exchange rate factor of 1.11 and a shadow wage rate factor of 0.83 were applied.

15. Economic costs were brought to a 2014 price base year as used at appraisal by application of a relevant price index.[4] Unit rates for road maintenance were based on the assumptions used in the economic analysis at appraisal: (i) routine maintenance costs of $1,390 per km; and (ii) periodic maintenance costs of 10% of capital costs in years 6 and 12, and 25% of capital costs in year 18.

[3] ADB. 1997. *Guidelines for the Economic Analysis of Investment Projects.* Manila.
[4] IMF. World Economic *Outlook* Database. http://www.imf.org/external/data.htm (accessed 28 April 2014).

F. Economic Benefits

16. The benefits considered in the economic reassessment are: savings in VOCs; improvements in travel time; changes to emissions of greenhouse gases, which were not included at appraisal; and reduction in accidents. As the projects under the abovementioned investment program use the existing alignment, the calculation of time savings was not based on any reduction in vehicle-km travelled, but only on expected increases in average speed. The calculation of time savings benefits did not include crew costs, because they form part of the VOC calculations. Benefits from generated trips are considered to be worth half the per-trip savings calculated for existing travelers.

17. Savings in VOCs are calculated for the project and derive from improvements to the surface conditions and roughness on the upgraded sections, relative to the existing sub-standard sections. Unit rates for VOC/km, which vary by international roughness indexes, are based on Highway Development Model-4 (HDM-4) outputs provided by the consultants engaged under Tranche 1 of the CAREC Corridor 2 Investment Program (footnote 1), converted to a 2014 price base year. Average speeds used in the economic analysis are based on HDM-4 outputs. Green house has emission impacts were calculated using software of Transport Emissions Evaluation Models for Projects (TEEMP) and a value for carbon of $20/ton.

18. The economic analysis used hourly values of time of $1.88 for work travel and $0.56 for non-work travel. As the VOC unit rates included a crew cost component, the time savings calculation did not include any savings in terms of vehicle crew, as this would represent double-counting. The calculation of savings from reductions in the number of road collisions was based on accident rates and numbers derived from HDM-4.

19. **Results of economic reevaluation.** The results of the economic reevaluation covering the full project period are in Table A11.3. The economic indicators provided are: EIRR and BCR. The principal reasons for the differences in the economic indicators between the appraisal and completion stages are (i) changes to project scope, cost and construction period, (ii) changes to methodology (paras. 4-9), and (iii) higher–than-expected traffic growth during 2007–2013.

Table A11.3: Project Economic Indicators

Section	BCR (ratio)	EIRR (%)
At Appraisal		
Overall	2.68:1	28
Karakalpakstan (km 876–916)	1.44:1	17
Khorezm (km 490–581)	3.34:1	34
At Completion		
Overall	1.21:1	14.4
Karakalpakstan (km 876–916)	1.60:1	19.9
Khorezm (km 490–581)	1.17:1	13.8

BCR = benefit to cost ratio; EIRR = economic internal rate of return; km = kilometer
Source: Asian Development Bank estimates, project preparatory technical assistance consultant's report.

20. Sensitivity tests and calculations of switching values were carried out to determine the effect of variations in key input parameters on the key economic indicators. Table A11.4 shows a switching value of –19% with respect to vehicle operating costs.

Table A11.4: Result of the Sensitivity Analysis

Scenario	NPV (2014 SUM billion, Domestic Prices)	EIRR (%)	Switching Value (%)
Base	35.8	14.4	
Vehicle Operating Costs –20%	(2.5)	11.8	(19.0)
Value of time –20%	31.5	14.1	N/A

EIRR = economic internal rate of return, N/A = not applicable, NPV = net present value
Source: Asian Development Bank estimates.

21. In summary, the economic reevaluation was undertaken in line with the ADB guidance. Although the EIRR is now lower than that calculated at appraisal, the project return exceeds the 12% threshold, and the project remains economically viable.

Table A11.5: Detailed Results of the Economic Analysis
(SUM billion, 2014 domestic prices, undiscounted)

Year	Capital Cost	Maintenance	VOC Saving	Time Saving	Accidents	Green House Gas	Net Benefits
2008	0.14	0.00	0.00	0.00	0.00	0.00	(0.14)
2009	25.53	0.00	0.00	0.00	0.00	(0.77)	(26.29)
2010	38.68	0.00	0.00	0.00	0.00	(1.92)	(40.60)
2011	13.73	0.00	0.00	0.00	0.00	(2.69)	(16.43)
2012	61.70	0.00	0.00	0.00	0.00	(2.31)	(64.01)
2013	72.49	0.18	30.02	2.69	0.27	(0.71)	(40.40)
2014	74.69	0.18	31.97	2.99	0.27	(0.77)	(40.40)
2015	0.00	0.18	33.89	3.32	0.30	(0.82)	36.52
2016	0.00	(15.30)	35.73	3.65	0.30	(0.85)	54.14
2017	0.00	0.18	37.71	4.04	0.33	(0.91)	40.99
2018	0.00	0.18	39.77	4.45	0.36	(0.96)	43.44
2019	0.00	0.18	40.98	4.64	0.36	(0.99)	44.81
2020	0.00	25.98	42.21	4.89	0.36	(1.02)	20.46
2021	0.00	0.18	43.48	5.14	0.38	(1.07)	47.75
2022	0.00	(38.53)	44.77	5.41	0.38	(1.10)	87.99
2023	0.00	0.18	46.11	5.69	0.41	(1.13)	50.91
2024	0.00	0.18	47.52	5.96	0.41	(1.18)	52.53
2025	0.00	25.98	48.92	6.29	0.41	(1.21)	28.43
2026	0.00	0.18	50.40	6.62	0.44	(1.24)	56.04
2027	0.00	0.18	51.91	6.98	0.44	(1.29)	57.86
2028	0.00	(15.30)	53.48	7.36	0.47	(1.46)	75.15
2029	0.00	0.18	55.07	7.75	0.47	(1.51)	61.59
2030	0.00	0.18	56.72	8.18	0.49	(1.57)	63.65
2031	0.00	0.18	58.42	8.62	0.52	(1.62)	65.77
2032	(139.89)	0.18	60.18	9.06	0.52	(1.68)	207.80
						EIRR (%)	**14.4**
						NPV (Discount rate: 12%)	**35.8**

( ) = negative.
EIRR = economic internal rate of return, NPV = net present value, VOC = vehicle operating cost.
Source: Asian Development Bank estimates.

CONTRIBUTION TO THE ADB RESULTS FRAMEWORK

No.	Results Framework Indicators[a]	Targets[b]	Achieved	Methods or Comments
1	Expressways and national highways built or upgraded (km)	131	131	Achieved as originally designed.

ADB = Asian Development Bank, km = kilometer.

[a] This is a standard transport sector indicator for Level 2 (Output and Outcome) as defined in the ADB's Guidelines for the Use of ADB's Results Framework Indicators for Core Sector Outputs and Outcomes (2013).

[b] The target value is listed in the project design and monitoring framework.

Source: Asian Development Bank.

PROJECT OVERALL ASSESSMENT

Criterion	Weight (%)	Assessment	Score[a]	Weighted Rating
Relevance	25	Highly relevant	3	0.75
Effectiveness	25	Effective	2	0.50
Efficiency	25	Efficient	2	0.50
Sustainability	25	Likely	2	0.50
Overall Assessment[b]		**Successful**		**2.25**

[a] Rating range: 3 = highly relevant, highly effective, highly efficient, and most likely sustainable; 2 = relevant, effective, efficient, and likely sustainable; 1 = Less than relevant, less than effective, less than efficient, and less likely sustainable; 0 = irrelevant, ineffective, inefficient, and unlikely sustainable.

[b] Highly successful: overall weighted average is ≥ 2.7; Successful: overall weighted average is ≥ 1.6 and < 2.7; Less than successful: overall weighted average is ≥ to 0.8 and < 1.6; Unsuccessful: overall weighted average < 0.8.

Source: ADB. 2006. *Guidelines for Preparing Performance Evaluation Reports for Public Sector Operations*. Manila. ADB. 2013. *Amendments to the IED Guidelines for Preparing Performance Evaluation Reports for Public Sector Operations*. Manila.